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EDITORIAL.

A Growing Evil.

THE leading pharmacists of this city have had several meetings recently to consult in regard to the prescribing by physicians of special preparations emanating from the large manufacturing establishments. This practice is working to the injury of both the physician and pharmacist. The pharmacist, in order to hold his trade, is obliged to keep in stock a full line of similar preparations from perhaps a half a dozen different makers, and the physician often loses his fees from the patient finding out that he can purchase the remedy prescribed in original packages and at reduced rates from the fancy goods dealer or the wholesale druggist, and will continue the use of the medicine, and if benefited, recommend it to a friend, without giving his doctor the credit by sending him other patients. It is now proposed, and an able Committee has been appointed to get up a uniform set of formulas for the preparation of the different elixirs, syrups and other products of elegant pharmacy, so called, for the use of the pharmacists and physicians of New York and Brooklyn, so that after the adoption and publication of these formulas the physician may send his patient to any respectable pharmacy, confident that his precription will be filled with a uniform and reliable preparation, which cannot be obtained by the patient in any other way than by his order.

J. W. S.

The above communication relates to a topic which has been discussed in pharmaceutical journals and societies for many years past, and will doubtless demand attention for some time to come before it is satisfactorily settled, if, indeed, it can ever be settled satisfactorily.

In a paper read by Mr. S. P. Willlams, at the annual meeting of the Connecticut Pharmaceutical Association, the writer alluded to the ease with which the matter could be handled, if only retail pharmacists were concerned, and to the fact that it is the relations of physicians to the question that give rise to the troublesome complications. In this paper, as in the above communication, no account is taken of the attitude of the manufacturers of proprietory goods, or of the sentiments of the public, and both of these, we believe, will be found more difficult to deal with than the disposition on the part of physicians to prescribe articles of unknown composition. In fact, the enormous consumption of proprietary articles depends but very little upon the patronage of physicians as compared with the demand created by wholesale advertising in religious and secular papers. The panaceas sold by general storekeepers and dealers in fancy goods are not, as a rule, those which are extensively advertised in either medical or pharmaceutical journals, and the attempt on the part of either retail pharmacists or physicians to repress this business will be about as successful as were Mrs. Partington's efforts to arrest the rising tide with her broom. If every retail pharmacist in the land were to clear his establishment of these panaceas and refuse to handle them in future, it would make but a temporary difference in their sales; other tradesmen would supply the demand and their consumption would continue just as long as religious journals continue to be published and human nature remains as it is. As for the multiplicity of articles prescribed by physicians, a survey of any retail stock of drugs and medicines will show that one or two cases at most, usually adjoining the prescription counter, will hold all of these wares, while usually one entire side of the store is often devoted to the shelving of secret preparations and of articles which, so far as the interests of the community are concerned, might just as well be sold by a grocer, a shoemaker, or a vender of peanuts, as by an educated pharmacist. Physicians prescribe a pill coated with gelatine in preference to one coated with sugar, or *vice versa*, because they think one superior to the other, or because they have greater confidence in one manufacturer than in another. Furthermore, they believe that their patients will pay less for articles made in large quantities than for such as require to be made in small quantities on a special order. The natural result which would follow the publication of any series of accepted and approved formulas for syrups, elixirs, pills, fluid-extracts, etc., that are not already officinal, but which become more or less so as a matter of common consent, would be to lead to their manufacture on a large scale by men who have the facilities and skill for doing so, and their purchase by retail dealers who lack the ability or inclination to make them for themselves. The preference which the wares of this kind now made by certain houses have over others consists not so much in the fact that their ingredients are secret as that there are trade secrets connected with their manufacture, which insure the handsome appearance and uniformity of the product or avoid pecuniary loss when they are made on a large scale. Such secrets are the legitimate property of the possessor who has acquired them by expenditure of time and money.

There is another aspect of this question which does not appear to be understood by those who encourage the pres-

(Continued on page 80.)

[ORIGINAL COMMUNICATION.]

On the Constituents of Andromeda Japonica (Thunberg).

BY PROF. J. F. EYKMAN.

(Continued from vol. XI., 290.)

IN a former number of this journal, I published a notice on the poisonous constituent of *Andromeda japonica* Thunberg, which I named *asebotoxin*, and which is obtained from the watery infusion by shaking with chloroform.

The residuary liquid is afterwards precipitated, while warm, with acetate of lead, the lead removed from the filtrate, and the liquid then evaporated to a small volume After long standing, a crystalline mass separates which is collected as completely as possible, purified by recrystallization, solution in alcohol and ether, and decolorization with animal charcoal. A little water having been added and the ether having been removed by distillation, the residuary dilute alcoholic solution separates handsome, shining needles, which can easily be obtained quite pure by being washed with ether and recrystallization from water. This substance shall be designated *asebotin*.

Asebotin forms colorless needles, which are but slightly soluble in water, but easily soluble in hot or boiling water. Petroleum-ether, benzol, chloroform and absolute ether dissolve it but slightly. The aqueous solution has a very bitter taste. In alcohol, also in absolute, and in glacial acetic acid, it is very readily soluble. It is also more or less soluble in a mixture of alcohol and ether, according to the proportion of the solvents. It has a neutral reaction, and is not precipitated by metallic salts in an aqueous solution. Basic acetate of lead, however, produces a white cloudiness. Some experiments on its solubility, at ordinary temperature, gave the following results:

1 part in 2,000–2,500 of water
1 " " 6,000–6,600 " absolute ether
1 " " 25,000 " chloroform.

Its melting point was found to be 147.5° C. (uncorrected), and its specific gravity 1.356 at 16° C. It does not appear to be poisonous, when injected hypodermically in doses of 5 milligrams ($\frac{1}{12}$ grain). It is soluble in dilute alkalies. In these solutions, which acquire a brownish yellow color on exposure to air, bromine produces a bright yellow precipitate, which changes, on the addition of an excess of the reagent, to an amorphous substance very soluble in chloroform and in ether, and rapidly becoming bright red. If asebotin be evaporated with nitric acid, a yellow residue is left, soluble in water, and affording distinct reactions of oxalic acid. In a moist, ammoniacal atmosphere the crystals, after being moistened with water, assume a red-brown color. When dried at 100° C., they do not appear to lose any water of crystallization.

Elementary Analysis.

1.—0.3130 gm., dried at 100° C., yielded 0.1574 gm. H_2O, and 0.6548 gm. CO_2.

2.—0.3533 gm., dried at 100° C., yielded 0.1775 gm. H_2O, and 0.7383 gm. CO_2.

	Found			Calculated for $C_{24}H_{28}O_{12}$
	I.	II.	Mean	
C=12	57.05	56.99	57.	56.7
H= 1	5.59	5.58	5.6	5.5
O=16	37.36	37.43	37.4	37.8

Asebotin does not reduce alkaline copper solution on boiling, except after being previously boiled with a dilute mineral acid. In this case, a crystalline substance, *asebogenin*, is separated, which has a light greenish tint, and which may easily be obtained in fine, colorless needles by solution in alcohol and precipitation with water.

Asebogenin forms colorless, fine needles which are insoluble, or nearly so, in cold as well as in boiling water. In alcohol and in ether, also when absolute, and in alkalies, it is quite soluble. It is odorless and tasteless, has a neutral reaction and yields a white precipitate with basic acetate of lead. (A mixture of ammonia and acetate of lead is used in place of ordinary basic acetate in this case, as well as in the case of asebotoxin and asebotin.)

Elementary Analysis.

0.2958 gm., dried at 100° C., yielded 0.1439 gm. H_2O, and 0.6754 gm. CO_2.

	Found	Calculated for $C_{18}H_{18}O_7$
C=12	62.37	62.43
H= 1	5.40	5.20
O=16	32.23	32.37

As I did not have a sufficient quantity of asebogenin to make a second analysis, I was compelled to be satisfied, for the present, with a single one. The obtained figures, however, lead to the following equation, exhibiting the splitting up of asebotin by dilute mineral acids:

$$\underset{\text{asebotin}}{C_{24}H_{28}O_{12}} + H_2O = \underset{\text{asebogenin}}{C_{18}H_{18}O_7} + \underset{\text{glucose.}}{C_6H_{12}O_6}$$

According to this equation, 100 parts of asebotin should yield 68.1% of asebogenin and 35.4% of glucose. In my experiment, I obtained from 1.427 gm. of asebotin 0.941 gm. or 65.9% of asebogenin.

The filtrate and wash-water, after removal of the sulphuric acid used in the reaction, yielded an amorphous, light yellow substance, strongly reducing alkaline copper solution, and entirely resembling glucose. The quantitative determination of this miscarried by an accident.

0.4462 gm. of asebotin, treated with a somewhat larger quantity of sulphuric acid, yielded 0.280 gm. or 62.7% of asebogenin, and 36.2% of glucose, the latter determined by titration of the filtrate with alkaline copper-solution.

In the literature to which I have access here, I could not find any bitter glucoside which agrees in all its properties with asebotin.

Perhaps it has some connection with *arbutin* which is found in some ericaceous plants; this, at least, differs from asebotin merely by H_2O:

$$\underset{\text{arbutin}}{2C_{12}H_{16}O_7} - 2H_2O = \underset{\text{asebotin.}}{C_{24}H_{28}O_{12}}$$

Still, these two substances are certainly not identical, as is seen already from a comparison of their properties. When brought in contact with a moist ammoniacal atmosphere, a sample of arbutin here available behaved entirely different from asebotin, inasmuch as it assumed a sky-blue color.

Asebogenin differs from it likewise, since arbutin, by splitting up, yields hydroquinone.

TOKIO, December 15th, 1882.

On the Poisonous Constituent of Andromeda Japonica.*

PROF. PLUGGE happened to be engaged in an examination of *Andromeda japonica* at the same time with Prof. Eykman, but without being aware of it Prof. Eykman announced in No. 21 of the *Pharmac. Weekblaad* (Sept. 24th, 1882) that his paper would appear in the next number of the *Tijdschrift voor de Pharmacie*, whereupon Prof. Plugge, who had not time to completely elaborate his article, published the preliminary results of his investigations in No. 22 of the same journal (Oct. 1st, 1882). Prof. Eykman's paper appeared simultaneously in the before-mentioned journal and in NEW REMEDIES, and Prof. Plugge has, since then, published his results in full. From his paper we abstract such portions as appear to present the more important new features, or differences of results.

Prof. Plugge obtained a poisonous ingredient from the plant, which agrees in its main properties with Eykman's asebotoxine, but which he named *andromedotoxine*. He also found a peculiar substance, which he termed *andromedorubine*, and which is probably the substance which produces the red color of the infusion of which Eykman speaks.

* From a paper communicated by Prof. P. C. Plugge; reprinted from the *Nieuw Tijdschrift voor de Pharmacie*, 1882.

Plugge considers Eykman's process of separating asebotoxine as being rather difficult of execution, chiefly on account of the tendency of chloroform to form an emulsion with the watery solution, and he further remarks that petroleum ether subsequently added to the concentrated chloroformic solution does not precipitate the whole of the substance.

While the two toxic substances discovered by both investigators were found to have, in general, identical properties, there are still some differences, which may possibly be owing to the presence of some impurity in the one or the other. Plugge says, that "andrometoxine is separated from an infusion, which even after the removal of lead, shows a strong reducing power upon alkaline copper solution and other reagents," and he expresses a doubt whether the reactions ascribed to the proximate principle, in which reduction occurs, may not be due to an accompanying impurity. Finally he says: "The glucoside nature of the substance I consider still as unproved, and as I have only very little material, which I moreover must reserve for toxicological experiments, I shall probably have to resign the further determination of this question to Prof. Eykman."

[The communication above printed contains the last-named author's late researches, which throw light upon the points to which Plugge alludes.—ED. N. R.]

[ORIGINAL COMMUNICATION.]

The Separation of Quinine from Coated Pills.

BY HENRY B. PARSONS.

FOR some time, I have endeavored to devise and develop a simple and thoroughly reliable assay method for valuation of quinine pills. The following scheme is presented as the result of considerable experience. It will be seen that, as here described, it is only applicable to those pills free from other cinchona alkaloids.

The process which I have used may be termed a "dry process," to distinguish it from the "shaking-out" methods most commonly recommended. The latter are valuable where the mixture examined is not too complex, and even in inexperienced hands may give very close results in some complex mixtures, but in the case of quinine pills they have not afforded me as accurate results as are to be wished. It seems desirable, therefore, that some method corresponding to the lime assay-methods for cinchona barks should be developed. The following process, which I have used for some time, and which is still a subject for study and improvement, is submitted.

Take a sufficient number of pills to represent twenty or forty grains of sulphate of quinine. The smaller number of grains is sufficient if manipulations are made with care, and the balance is sensitive to tenths-milligrams.

Treat the pills, in a very small Wedgewood mortar, with five cubic centimetres of cold distilled water, until the coating dissolves and the pill mass may be ground under the pestle to a smooth, uniform paste. To this paste add two grams of freshly slaked lime (calcium hydrate) in powder. Mix thoroughly, and dry the mixture slowly in the mortar by means of a steam or water bath.

If glucose has been used as an excipient, the mass, in drying, will be colored yellowish owing to formation of decomposition products, the result of the action of lime upon the glucose. These products do not interfere with the separation of the quinine in a pure state; the latter substance is not injured by the lime.

The dry mass should be finely powdered, and transferred to a Tollen's apparatus* for continuous percolation, and thoroughly extracted with stronger ether. Upon evaporation of the latter from a weighed dish or flask, the quinine is left in residue. By drying for one hour at 125° C., the quinine is rendered anhydrous ($C_{20}H_{24}N_2O_2$), and may then be weighed. The weight of anhydrous quinine, in grams, multiplied by 20.7673 will give the number of grains of sulphate of quinine [$(C_{20}H_{24}N_2O_2)_2H_2SO_4.7H_2O$] in the pills examined.

Where a Tollen's extraction apparatus is not at hand, very accurate results may be obtained by simply transferring the dry powdered lime and pill mixture to a small flat-bottomed flask, measuring in a known amount of stronger ether, corking well, agitating occasionally, and allowing to stand for not less than twelve hours.

By use of an accurate pipette, an aliquot portion of the clear ethereal liquid may be withdrawn and evaporated cautiously in a weighed dish.

A little experience is necessary to insure accurate results. The mass may be removed from mortar and pestle almost completely by use of a small steel spatula. In making the paste, previous to the addition of the lime, considerable labor may be saved if the mass is confined to as small a portion of the mortar as possible. With a deep, narrow mortar, 3 *cc.* of water is often sufficient. The use of more lime may be advantageous in some cases. The dried mass is easily pulverized, is not so light as to be lost in dust, and may be readily transferred from the mortar. The quinine separated is free from impurities.

I find that chloroform cannot be used in this method of assay, owing to the fact that the decomposition products from action of lime on glucose are dissolved by chloroform, and impart to the quinine thus separated a red color and very decided excess of weight.

By digestion in a flask with stronger ether, as above described, the following results were obtained: The pills employed were taken at random from a lot of 21,733, which were known to contain 43,690 grains of sulphate of quinine ($7H_2O$). Each pill contained, therefore, 2.0057 grains of sulphate of quinine.

Duplicate results were 2.0113 and 1.9968 grains of sulphate of quinine per pill, the average being 2.0041 grains per pill.

Ten of the same lot of pills, extracted by stronger ether in a Tollen's apparatus, afforded 20.0031 grains of sulphate of quinine.

I am inclined to think this method thoroughly reliable, and capable of affording, in every case where carefully followed, 1.99 grains for every 2.00 grains of sulphate of quinine ($7H_2O$) used. I am indebted to my assistant, Mr. D. L. Haigh, for the careful performance of much of the work here recorded.

LABORATORY, 352 FRONT STREET, N. Y.,
February 16th, 1883.

* See NEW REMEDIES, Oct., 1879, p. 293.

[ORIGINAL COMMUNICATION.]

Dialysis.

I NOTICE in Mr. McIntyre's article on dialysis in the January number of NEW REMEDIES, the statement that the porosity of parchment paper not hasbeen demonstrated. Als that a column of alcohol or water in a glass-tube does no pass through parchment paper or bladder tied over the end although the volume of the liquid decreases by evaporation

The same statement could as truthfully be made of good canvas, which "holds water," as the saying is; although the water is absorbed, and passes through to evaporate from the other side, just as in the case of bladder or parchment paper.

If the column of liquid is high enough it will pass through and fall in drops or a stream, whether canvas, parchment paper, or bladder be used.

Among the quotations which he gives, there are none from Liebig. This author has written extensively on dialysis and kindred subjects, based on experiments made by himself, some of which are directly contrary to the above statements.

I herewith give some quotations from Liebig relating to the subject.

"The power which the solids of the animal body possess of taking up water into their substance, and of being penetrable to water, extends to all fluids allied to water, that is, miscible with it. In the dried state, the animal solids

take up fluids of the most diverse natures, such as fatty and volatile oils, ether, bisulphuret of carbon, etc.

This permeability to fluids is possessed by animal tissues in common with all porous bodies; and no doubt can be entertained that this is determined by the same cause which produces the ascent of fluids in narrow tubes, or in the pores of a sponge—phenomena which we are accustomed to include under the name of capillary action.

One condition essential to the permeability of porous bodies for fluids (or their power of absorption), is their capability of being moistened, or the attraction which the particles of the fluid and the walls of the pores or tubes have toward each other. A second condition is the attraction which one particle of the fluid has to another. We have no means of estimating the absolute size of the particles or molecules of a fluid, such as water, but they are certainly infinitely smaller than the measurable diameter of a tube, or of the pores of a porous body.

It is obvious, therefore, that in the interior of a capillary tube or pore filled with a fluid, only a certain number of the fluid molecules are in contact with the walls of the tube, and attracted by them; while in the middle of the tube, and thence towards its parietes, fluid molecules must exist which only retain their place by virtue of the attraction which the molecules attracted by the parietes exert on those not so attracted, that is, by the cohesive attraction of the fluid.

Liquids flow out of capillary tubes which are filled with them, only when some other force or cause acts; because capillary attraction cannot produce motion beyond the limits of the solid body which determines the capillary action.

The penetration of a fluid into the pores of a porous body is the result of capillary attraction; its expulsion can be effected by mechanical pressure, and may be accelerated by increasing this pressure, and by all such causes as diminish the mutual attraction of the fluid molecules or the attraction of the walls of the pores for these molecules.

The condition most favorable to the passage of a fluid through the pores of a porous substance under pressure is when one fluid molecule can be displaced so as to glide away over another.

When we compare with the properties just enumerated, which belong to all porous bodies, those properties which are observed in animal substances under the same circumstances, is appears plainly that these animal substances have pores in certain directions, although these openings are so minute that they are not, in the case of most tissues, perceptible even with the aid of the best microscopes." . . .

"If the wide opening of the tube, Fig. 1, be tied over with a portion of bladder, and water poured into the wide part of the tube so far as the mark *a*, we shall find that, when mercury is poured into the upright narrow part of the tube to a certain height, the whole external surface of the bladder becomes covered with minute drops, which, if the column of mercury be made a few lines higher, unite so as to form large drops. These continue to flow out uninteruptedly, if mercury be added so as to keep the column at the same height, till at last the wide part of the tube is emptied of water and filled with mercury.

Solutions of salt, fat oil, alcohol, etc., behave exactly as water does; under a certain pressure these fluids pass through an animal membrane, just as water does through a paper filter. . . .

When a tube, about 30 inches long, bent in the form of a knee, and widened at one end, is tied over at that end with a piece of moist ox-bladder, the bladder now thoroughly dried, and the tube filled with mercury and inverted, so that the open narrow end stands in a cup of mercury, the mercury in the tube falls to about 27 inches (Hessian), and remains, if the bladder have no flow, at that height, rising and falling as the mercury does in a barometer. No air passes through the dry bladder into the Torricillian vacuum thus produced. By the desiccation of the bladder, its pores, which allowed a passage to water, brine, oil, or even mercury, have obviously been closed by the adhesion of the successive layers of membrane, which perhaps cross each other, so that the bladder is not more permeable for the particles of air than a slice of horn of the same thickness." W. C. TIDBALL.

1210 Washington Ave.,
ST. LOUIS, MO.

Digestion-Bottles.

IN the course of a paper on some assay process of the new German pharmacopœia, in which it is necessary to digest a mixture for the purpose of setting iodine free, Mr. Paul Lohmann recommends the use of special bottles, provided with accurately ground stoppers and with an arrangement for securing the stopper in its place, as shown in the cut. This arrangement prevents the loss of vapors by an accidental lifting of the stoppers. The bottles are made and fitted by Bach & Riedel, of Berlin.—After *Pharm. Centralhalle*, 1882, No. 51.

[ORIGINAL COMMUNICATION.]

Note on the Use of the Oil of Pongamia Glabra (Vern Kurzel) in Pityriasis versicolor of India.*

BY SURGEON-MAJOR DYMOCK, B.A.

PONGAMIA-OIL has long had a reputation as a remedy in skin diseases, rheumatism, unhealthy ulcers, etc. Chakradatta mentions it under the names of *Karanja* and *Nactamala*, and gives several prescriptions in which it is combined with other active drugs of known utility in skin diseases. Ainslie mentions the use of the juice of the root for cleaning foul ulcers, etc., and of the oil in itch and rheumatism.

Gibson speaks highly of the oil as a remedy in scabies, herpes, and other cutaneous diseascs of a similar nature.

As a specific character of the skin diseases in which this oil has been used is not clear from the description of the above-mentioned writers, I determined to make some experiments with the oil, and selected pityriasis versicolor as a common and troublesome affection for the first experiment. Several cases occurring on the face, neck, and shoulders were cured in less than a fortnight by rubbing the oil in twice a day. I would now ask the members of the Society to try the oil in other skin diseases, especially those which are attended, like pityriasis, by the growth of a fungus. The oil is always obtainable, being used as a lamp oil by the country people in Salsette. I place a sample of it upon the table. It is bitter and has a peculiar odor. It solidifies at 8° C., and even in Bombay in the cold weather deposits some crystalline fat. The seeds yield in the ordinary native press 27 per cent of oil sp. gr. 0.945. Sulphur, acetic acid, iodine, and goa powder have been used as remedies in pityriasis; but I consider this oil more effective than acetic acid, and it has the advantage over iodine and goa powder of not discoloring the part (often the face) to which it is applied.

* Communicated by Messrs. Christy & Co., London, Eng.

Automatic Heat Regulator.

BY GEO. M. STERNBERG, SURGEON U. S. A.

On page 359 of NEW REMEDIES (Dec., 1882) I find an account of "An Automatic Heat Regulator" (illustrated) to which the name of Dr. Regnard is attached.

As this is, essentially, my invention which is covered by several patents dating from March 1st, 1870, to July 12th, 1870, and for which I received a first premium at the fair of the American Institute, New York, in 1870, I must beg you to give me credit for the same.

I do not, however, propose to make any claims based upon the patents which I hold, as I have long since ceased to look for any pecuniary benefit from the invention.

Those, therefore, who may have occasion to regulate temperature to a nice point, automatically, are quite welcome to use my "Electro-Magnetic Regulator."

I inclose a copy of the *Scientific American* of Aug. 27th, 1870, containing an illustrated article describing my invention, and I doubt not you will at once recognize the justice of my claim.

GEO. M. STERNBERG,
Surgeon U. S. A.

FORT MASON, SAN FRANCISCO, CAL.

The following figures taken from the *Scientific American*, of August 27th, 1870, show the details of Dr. Sternberg's invention to be in some respects the same as that lately published in NEW REM., the difference being in the application of clock-work to operate a gas-cock. Fig. 1 is the form of thermometer used to regulate the temperature of rooms. Fig. 2, that used for liquids. Fig. 3 shows the complete apparatus as employed for chemical and pharmaceutical operations. The same mechanism serves to regulate the rapidity of combustion in a hot-air furnace by substituting an air damper for the Bunsen burner. In Fig. 2, A represents the thermometer bulb, and B, a platinum wire, fused into the glass, and communicating with the mercury in the thermometer; C, the point of junction of the mercury in the stem of the thermometer with a wire, D, which passes through a small aperture in the upper end of the stem. By raising or lowering this wire the point of juncture can be varied, as desired. Fig. 1 represents essentially the same apparatus as arranged for regulating the temperature of a room, an adjusting roller being used to control the position of the wire D. It also has binding screws E and F for the wires connecting it with the battery. Whenever the point of the wire D and the mercury in the thermometer touch each other, the circuit is complete, while the falling of the mercury below the end of the wire breaks the circuit and opens the gas-cock or damper.

FIG. 1

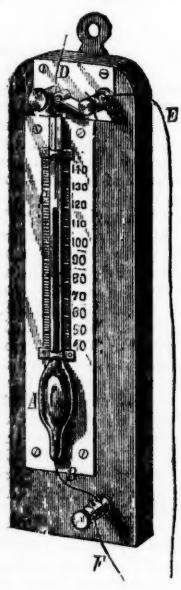
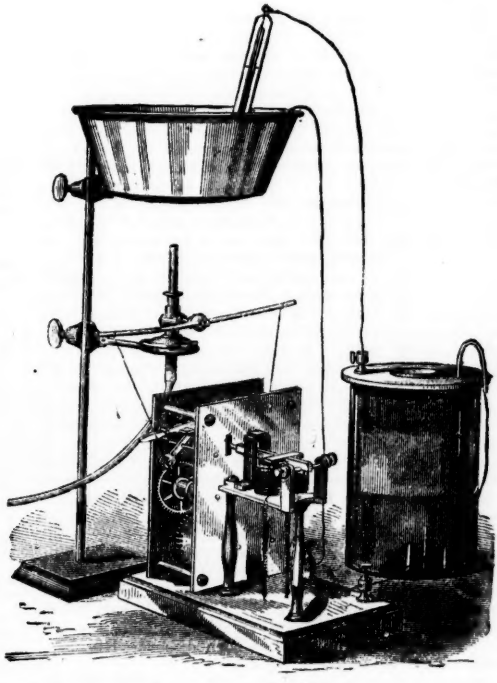


FIG. 2.

FIG. 3.



Sternberg's Automatic Heat Regulator.

Color of Glass-Bottles.

A GERMAN journal says that liquors contained in colored glass bottles, when exposed for some time to light, acquire a disagreeable taste, however good their quality may have been previously; when, however, brown or green glass has been used, their flavor remains unaffected even when exposed to direct sun-light.

A new Variety of Glass.

THE *Wiener Gewerbe-Zeitung* states that a chemist of Vienna has invented a new kind of glass, which contains no silex, potash, soda, lime, nor borax. In appearance it is equal to the common crystal, but more brilliant; it is perfectly transparent, white, and clear, and can be cut and polished. It is completely insoluble in water and is not attacked by fluoric acid, but can be corroded by hydrochloric and nitric acids. When in a state of fusion it adheres to iron, bronze, and zinc.—*Gaceta Industrial.*

Export Drugs of China.*

THE Chinese drug market has experienced considerable alterations during the last ten years. While the main depot was formerly at Canton, to which place these products, partly derived from the extreme north-west of the empire, were brought by land or river routes, and while considerable quantities reached Europe also by the caravan route over Kiachta, transport by sea has now become almost the sole means of forwarding these goods, and Shanghai has become the principal place of export. In consequence of a number of complicated causes, chiefly the opening of the northern treaty ports, the merchants were compelled to accept the altered routes; several exporting drug firms, which had previously been domiciled only at Canton and Hong Kong, have now established branches also at Shanghai. The total export from China, during the fifteen years between 1867 and 1881, amounted in piculs (1 picul = 133⅓ lbs. avoird.) to:

Rhubarb ..	63,389	Galls.....	233,976
Musk.....	25,664½†	Cassia.....	796,068
Camphor..	159,129		

Rhubarb is a product of the northern and north-western provinces of China. Marco Polo already mentions it as the object of an extended caravan trade, and Du Halde (who drew his information from reports of Jesuitic travellers anterior to 1735) refers to the snow-clad mountains between Lianchou-fu and Soochow, in the province of Kansu, as chief sources of production; but he also mentions the province Szechuen as source of the best kind. These statements are confirmed by the recent reports of the Russian traveller, Col. Przewalsky. According to him, the land of the Tanguts, the Alpine region of the lake Kokonor, with the districts about the sources of the rivers Etsina, Tatung, and Hoangho, are to be regarded as the true home of rhubarb, which grows there wild at altitudes seldom over ten thousand feet, in large quantities, chiefly in the ravines of the northern mountain slopes. The time of digging falls principally into the months of September and October, after the ripening of the seed, but before the advent of the frosts. It may also be dug in the spring But during the flowering season (summer), the root is said to become porous, whereby its medicinal virtues are deteriorated. The further treatment consists merely in removing the lateral excrescences and the external bark, and in cutting the root into longitudinal strips, which are strung upon twine, and hung up to dry in a well-ventilated, shady place, preferably the loft under the roof. The thinner roots, which fetch a lower price, are dried with less care. Now and then, the Tanguts raise the plants from seeds or cuttings in the neighborhood of their dwellings; in this case, the roots do not acquire their ripeness until about the eighth year. The specimens collected by Przewalsky have been examined chemically at St. Petersburg, and have been pronounced to be identical with Rheum palmatum. [Still there is reason to doubt whether the true source of Chinese rhubarb has been discovered in Przewalsky's specimens.—ED. N. R.]

Commercial Sorts and Names.—It is a curious fact that the remembrance of the true source of rhubarb is lost even before it reaches its chief place of export, viz., Shanghai. In the trade between Chinese and foreign merchants, a better grade and an inferior grade are distinguished, the respective names of which, namely, "Shensi" and "Szechuen," apparently point to the provinces from which they are derived. Within each of these two kinds, two further sorts are distinguished, namely, "sundried" and "high dried," which terms refer to the manner of drying the roots, either by slow exposure to the air (as they should be), or rapidly in ovens or on heated stones, a bad method already mentioned by Du Halde. The above terms would seem to indicate that all Chinese rhubarb comes from those two provinces; yet the most reliable reports assign the best rhubarb to the province of Kansu, which is not mentioned in commerce at all.

A German firm largely engaged in the export of rhubarb has, by request, made inquiries from its Chinese mercantile friends, the results of which we communicate, as they throw some light on this point, as well as on other early stages of the rhubarb trade.

Shensi Rhubarb.—There can be no doubt that Shensi rhubarb does not come from Shensi, but from Kansu. The name Shensi rhubarb is easily explained by the fact that the whole trade is in the hands of Shensi merchants, and that the rhubarb is not prepared for the market until it has reached the province of Shensi.

Si-huang or Chi-huang is said to be the general term for what we understand by Shensi rhubarb, and this is said to comprise the following grades:

Sining (best quality).
Mingtzui (second quality).
Nambuing (third quality).
Wootzui (fourth quality).

The name of the first quality points to the city of Sining in the province of Kansu (about 2½° west of the capital, Lan-chow-fu), which city is the principal market for Shensi rhubarb. The rhubarb is brought hither in its whole state, and is cut in pieces, if too large, and afterwards dried. The great rarity of air-dried drug necessitates the conclusion that the Chinese in Sining have generally adopted the method of drying by artificial heat, to the detriment of the drug.

From Sining, the rhubarb is transported to Sen-yuen-fu, which is said to lie about sixty miles east of Singansu, the capital of Shensi. Here the drug is prepared, that is, the bark is peeled off, the roots are cut into more shapely pieces, and shaken about in baskets, which brings out the color more distinctly. Finally, it is packed in boxes for shipment to Hankow and Shanghai.

In Sen-yuen-fu, the best quality of Sining is almost always mixed with the cheaper Mingtzui, in order to render the price lower. The loss in weight during the preparation of the rhubarb in Tsing-yuen [the same as Se-yuen-fu, above?] amounts from thirty to thirty-five per cent for good quality, and forty-five to fifty per cent for ordinary Shensi. Shensi rhubarb, according to Chinese reports, is not cultivated; it grows wild, like most other sorts. The deterioration of the quality of Shensi rhubarb is caused by the fact that the Chinese do not give the roots sufficient time for development; partly also by the method of drying with artificial heat, whereby the inner color of the root and the fracture suffers greatly. To dry rhubarb completely in the air requires a long time, probably six months, and this is probably the reason why it is so seldom resorted to, particularly as there is a steadily increasing demand for the drug —After *Pharm. Handelsblatt*, 1883, No. 1.

Packing and Freight.—Rhubarb is packed in thin-boarded, wooden boxes lined with zinc, containing 1 picul (when packed at Shanghai) or ½ picul (when packed at Canton). Flat and round pieces are packed separately. A picul-chest usually measures 7 cubic feet; hence, the freight to London (at a rate of £2 10*s.* per ton of 40 cubic feet, and with an exchange of 5*s.* 6*d.* = 1 tael) amounts to almost exactly five per cent of it value (43 taels). To this must be added 10 per cent commission and other charges, then 2½ per cent loss of weight, by drying during the voyage, all of which items bring the cost-price of the drug, delivered in London, to 1*s.* 11½*d.* per pound. During the year 1881, the quotations of rhubarb, in London, were uniformly from 3*s.* 6*d.* per pound downward. Mail-steamers are preferred as carriers, because much depends upon careful handling or treatment of the drug which is rapidly deteriorated by dampness.

Sze-chuen Rhubarb.—The usual Chinese term for this is "ton-huang." These roots are dug in the mountains situated in the northeastern corner of the province of Szechuen, near the borders of the provinces of Hupeh and Shensi. The northern district of the mountains is said to yield the finer quality, known in commerce as "Shensi high dried root;" the western slopes yield an inferior sort, known as "Sze-chuen high dried root;" while the eastern portions of the chain produce the best Sze-chuen

* Report of the German Imperial Consul General at Shanghai.
† This figure is evidently a mistake.

rhubarb, the so-called "Canton root," of which the finest grade is called "Kue-yue." Good qualities of this "Canton root" are said to be dried by exposure to air, like the Sining Shensi rhubarb; but the market has lately afforded only at rare intervals the pure air-dried Sze-chuen drug.

"Shensi high dried" and "Canton" root grow wild and are not cultivated, but "Sze-chuen high" plants are raised by the natives.

Ordinary "high dried" rhubarb is also carried to Tientsin by way of Honan. Sze-chuen also furnishes a cheap sort known under the name "shang-huang;" this is not exported to either Europe or America, but is used in Japan.

With the preceding statements based upon Chinese sources, the statements of the German traveller, Baron von Richthofen—in his correspondence with the Chamber of Commerce of Leipzig—do not conflict. He places the starting-point of the rhubarb region in the Bajankara mountains in Thibet, which forms the watershed between the waters of the Hoangho and the Yantsekiang. From here its habitat extends, along the highest mountains, towards the north as well as the south. According to Richthofen, the market for the southern districts is Kwan-hien, in the farthest western part of Sze-chuen, and for the northern districts, the market is Sining, in Kansu, which, according to him, also furnishes the best grades. The habitat of inferior Sze-chuen sorts, which partly grow wild and partly are cultivated, is also located by him in the border-mountains between Sze-chuen, Shensi and Hupeh, about the district of Tanning.

From the preceding statements we may derive the following general results:

1. The genuine, medicinally preferable rhubarb grows only wild upon high mountains; the best kind near Sining in the province of Kansu.

2. "Shensi" and "Sze-chuen" rhubarb are merely trade names, the former of which includes the Sining quality, while the latter comprises inferior qualities in general, derived from wild-growing as well as cultivated plants, such as they grow chiefly in the eastern portion of Sze-chuen.

Prices.—Although the value of rhubarb at its place of growth and first markets is very small, yet the inland station toll,* the freight and other expenses raise the price so that good quality sells at Shanghai at 43 taëls per picul, or 3.80 marks (0.90 cents) per kilogramme, as may be seen from the following calculation:

"Sun-dried Sze-chuen" rhubarb is, indeed, much cheaper, so also "high dried Shensi"—from 32 taels down. But first quality "Shensi sun-dried," which has not appeared in the market at all for several years, would bring 60 to 70 taels per picul. The rhubarb trade is said to have brought no profit to the Chinese merchants engaged therein, during the past two years, which appears to be confirmed by the fact that one of the most important Hongs has given up this business altogether.

Signs of Genuineness.—The characteristics of good, genuine Shensi rhubarb are, a reddish-yellow or grayish-mottled color of a section, marbled streaks, grittiness on chewing (which is ascribed to the lime-crystals [*sic!* should be crystals of oxalate of lime.—ED. N. R.] ascribed to the presence of lime in the waters of the Kokonor; the crystals are therefore absent in European rhubarb [this is a mistake.—ED. N. R.]), heaviness, dryness, a fatty structure and a bitter, astringent taste. Ordinary Sze-chuen sorts are hard, porous, of a milder taste without aroma. There occur also sophistications by means of other roots resembling rhubarb, but without therapeutic properties.*

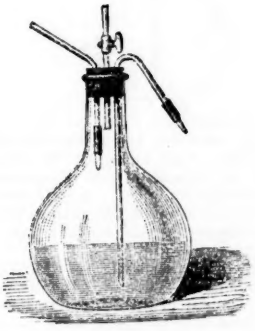
Medicinal Use in China.—The medicinal qualities of of rhubarb have been known in China from ancient times. According to a receipt already communicated by Du Halde, the dried and cut root is first soaked in rice-wine, then exposed for some time to the vapor of hot water, and again dried and powdered. In this condition it is administered in various bowel complaints. According to the statements of earlier travellers, the Tunguts made a sort of incense of it, and used it also as fuel and as food for horses. This has probably ceased, owing to the increased demand.

The price in Sining, where purchasers have to deal only with country-people, is quite uniformly 12 to 18 taels per picul of 100 catties.† It is different in Sin-yuen-fu, where the trade begins to be subject to regular mercantile rules, and where prices are subject to great fluctuations. These vary from 18 to 28 taels per picul of 115 catties for unpeeled roots. Let us take an average, 24 taels.

The loss by peeling and cleaning brings the price, of good quality rhubarb

	to 40 of 115 catties
Labor,	1 taels
Packing, boxes, twine, etc.,	1 "
Freight and lekin to Hankow	3 "
	47 taels
Value of peelings	2.50
taels	44.50 of 115 catties
or 100 catties "	38.70
Export-duty, ½ coast-duty, freight from Hankow to Shanghai	3.
taels	41.70

Difference of exchange betw. Hankow and Shanghai 3% (97–100) about 43 taels.



Hot-Water Wash-Bottle.

THE wash-bottle here illustrated is fitted with a triply-perforated india-rubber stopper. One of the perforations contains the usual discharge-tube, and another the blowing tube. The latter is somewhat enlarged at the inner end, and is provided with one of Bunsen's india-rubber valves which only opens in the direction of the interior of

*Or *Lekin*. From a communication received from the Austrian Consul, it appears that the following station-tolls (lekin) are levied, per picul:

At Sining-fu	0.50 taels.
" Lanipow-fu	0.50
" Anting-hien	0.50
" Pingliang-fu	0.50
" Singan-fu	0.36
" Lungkusai	0.18
" Kintsekuan	0.18
" Siang-yang-fu	0.18
" Sha-yang	0.18
" Tsai-tien	0.18
" Hankow	0.18
Total, 11 Stations	3.44 taels.

*This description is evidently taken from native sources.

† The picul is not of equal weight in all parts of China; and it is variously divided in different sections. Thus a picul is divided into catties (or kin), of which it may contain all the way from 85 to 400, according to the custom of the district, or according to the merchandise. In dealings with European merchants, however, and in the official calculation of the Chinese Customs, a *picul* (or *tan*) is always reckoned = 133⅓ pounds avoirdupois, and it is divided into 100 *catties* (or *kin*), each weighing 1⅓ pound.

One tael is equal to about $1.43, there being a variation due to various causes. In current accounts 720 taels are reckoned equal to 1000 piasters or dollars.

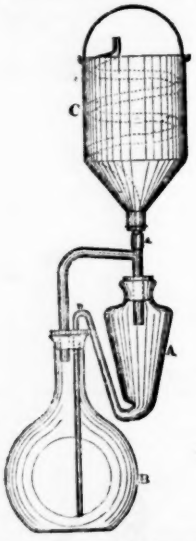
the flask. The third perforation carries a glass-tube with stop-cock, the lower end of the tube being obliquely cut off.

While the water is being heated, the stop-cock is opened to permit the escape of steam. When the wash-bottle is to be used the stop-cock is closed. The described arrangement causes the blowing tube to remain cool, and only a short blowing is required to cause a jet of water to be delivered. To arrest this, it is only necessary to open the stop-cock.—*Zeitsch. f. Anal Chem.*, 1883, 60.

Fat Extracting Apparatus.

BY T. O'CONOR SLOANE, PH.D.

In many processes of analysis a continuously working apparatus for extraction with alcohol or ether is useful. The extraction of chinchona barks for separation of the



alkaloids may be instanced. In their analysis it is best to work upon large quantities, and a long treatment with the solvent is necessary. Any attempt to thoroughly extract a large quantity by percolation and decantation would be tedious and probably imperfect. A well arranged fat extractor is particularly available for analysis of this type.

The cut, accompanying this, shows a very efficient and cheap form of fat extractor.

A represents a glass receptacle, in which the substance weighed out for analysis is placed. It will be recognized as one of the pieces used in the apparatus for extraction of soils. The bottom may be closed by a piece of sponge, and broken glass placed on this to a depth of two or three centimeters. The substance to be extracted rests on the broken glass.

B represents a glass flask. The alcohol or other extracting fluid is boiled in it, and the vapor is condensed in the condenser shown above it.

C is the condenser in question. It may be made with block-tin pipe for the coil, as shown by the dotted lines, and a varnish-can may serve for the case. If the varnish can should be used, the bottom must be cut off, and the handle transferred from top to bottom, as shown. The tin coil pipe passes through a perforated cork in the neck.

The other connections may be made of glass tubing, joined to the tin tube at *a* by a rubber tube.

The condenser is to be filled with water. While a continuous supply is desirable, it is not necessary, providing the condenser be large enough. In that case the water may be changed every hour, the warm water being siphoned off without dismounting the apparatus.

The operation is simple. The fluid in the flask B is boiled. Its vapor rises, condenses in the condenser C, and drops down into the receiver A. When sufficient has accumulated to rise above the bend D, it siphons into the flask, and the fluid is rapidly drawn out of the receiver, until by the admission of air at the bottom of the receiver the siphon is broken. A new accumulation of condensed fluid then takes place, which is soon siphoned off. Thus a continuous series of rapid percolations is produced, exhausting the substance in a most effective manner.

With a boiling flask of a litre capacity, a receiver of four hundred *cc.* capacity, and a condenser of five litres capacity, the extracting fluid being alcohol, the siphonings should follow each other at intervals of about twenty minutes.

The nearly horizontal portion of glass tube to the left of A should pitch downwards towards the receiver. This is very important, as otherwise the condensed fluid would partly run back into the flask.

Where alcohol or ether is used, a water-bath should be employed to boil it.

All the tube connections should be as large as possible to insure rapidity of working.—*Journ. Amer. Chem. Soc.*, Nov., 1882, 250.

FIG. 1.

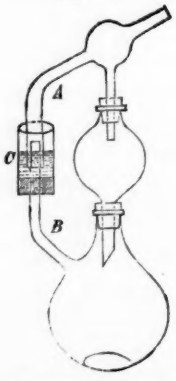
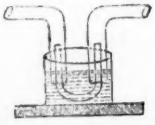


FIG. 2.



A Mercury-Joint as a Substitute for an India Rubber Tube.

The well-known extraction apparatus of Drechsel is very advantageously used in cases where the solvent is without action on rubber. But, if such liquids as benzol, chloroform, disulphide of carbon, etc., are to be used as solvents, the above apparatus cannot be employed, on account of the India rubber connection. Nor is it of advantage to substitute a cork-joint for the latter.

The following description and illustrations explain an improvement which not only removes the drawback connected with Drechsel's apparatus, but is also generally applicable for the purpose of connecting two glass tubes together, so as to be air and gas-tight, and, at the same time, readily movable.

The end of the tube *A* is a little enlarged, or the end of the tube *B* is contracted, so that the former may loosely fit over the latter. A wide piece of glass-tubing is fitted in one end with a perforated cork, which is slipped (tightly-fitting) over *B*, the tube *A* is then made to compass the end of the latter, and enough mercury is poured into the wide tube to cause its level to stand about at an equal distance from the ends of the tubes *A* and *B*, respectively. The proper position is easily regulated by cautiously twisting the mercury-reservoir *C* up or down.

This arrangement serves, at the same time, as a safety-valve, so that any alteration of pressure within the apparatus will merely cause an alteration of the mercury level without endangering the walls of the apparatus.

A simple method of joining together two glass tubes consists in slipping the open ends of either tube over the projecting ends of a semicircular glass tube standing in a

mercury-bath, as shown in Fig. 2. This permits an instantaneous detachment of either tube by merely lifting it out of the bath, and also permits an equally rapid replacement.—DR. H. MICHAËLIS in *Dingler's Polyt. Journ.*, 247, 35.

Deodorization of Musk and Iodoform.

MORTARS and other vessels which have become contaminated with the odors of musk and iodoform may be readily deodorized by treating them, first with strong sulphuric acid and then with a few drops of nitrobenzol, which, in turn, may be dissolved out by a few drops of alcohol and plenty of water. Nitrobenzol is quite as effectual as coumarin, quinine, and Tonka bean, which have all been recommended for this purpose, and is, of course, much cheaper.—*Rép. de Pharm.* and *Chem. Journ.*

American Musk.

BY R. S. CRISTIANI.

MANY of the readers of this will no doubt recollect an article of mine published last spring on this substance, which seemed to have attracted a good deal of attention both here and abroad by those using musk, as well as others interested, for I have had quite a correspondence on the subject, and I have noticed several other writers commenting on it,* which has induced me to write further on the subject.

It is perhaps unnecessary to say that it is obtained from the musk rat (Fiber Zibethicus), the well-known rodent frequenting the marshes and creeks of nearly all the States, being native to this country—hence the name I have given it. The animal is trapped for its skin, the fur being quite soft, the pelts being shipped in large quantities to Europe, where they are dried and finished and made to imitate more costly furs.

The sacs containing this strong smelling secretion, are situated near the anus, and are usually attached to the pelt when sold by the trappers, from whom the dealers collect it and sell it whenever a customer can be found, generally an itinerant peddler of herbs and roots who sells a few pods for perfuming clothing, or for placing among woollens to destroy moths, which it is not at all likely to do.

My first article on the subject seems to have been extensively copied here and in Europe, for I have received many letters of inquiry, also orders for the article for experiment in perfuming soaps, essences, etc., for I believe I am the only one who has tried to collect the article in a systematic way for use in commerce; this can only be done in the spring, when the animals are trapped, for their pelts alone are considered valuable.

For perfuming soaps it has proved very valuable, and blends very well with the substances usually combined with the true musk, as vanilla, benzoin, the spicy oils, etc. For essences I cannot speak so confidently, though in many of the cheaper perfumes it can be made to substitute the real musk. I have also made a tincture for the use of confectioners for musk lozenges, aromatic cachous, etc., that has proved satisfactory, the taste being as pleasant and lasting as the best musk, though the odor is not so fine or delicate. Yet on the score of economy it should be a valuable substitute, as the cost is very much less. It is nearly a year since I have supplied many of the larger manufacturers of fancy soaps in this country and in England with quantities sufficient for experiment, and to all those I have heard from, it has proved satisfactory. In Europe it seems to have been entirely unknown.

There can scarcely be a doubt that if a systematic effort was made to collect this musk, there would be a greater demand, and it would be better known and more generally used, as the perfume is strong and lasting, and when properly combined very much liked, while the cost is nominal compared with that of the genuine tonquin musk. For soaps it may be used in many of the finer kinds, as violet, heliotrope, frangipanni, etc. In sachet powders it can be combined with orris, vanilla, tolu, etc., as it gives great permanency to powders. For toilet waters, handkerchief extracts, etc., its use will remain limited; for the odor, though strong, is not sufficiently delicate for a refined taste, yet there are means of rendering it less harsh. The addition to the tincture of a little calcium hydrate with a portion of potassium hydrate in solution, is also beneficial, being also a solvent of the animal odor. For confectionery the flavor is modified by blending with such pleasant substances, while the musky flavor is retained.—*Oil, Paint and Drug Reporter.*

* Compare NEW REM., 1882, 337.

Ichthyol.

BY P. G. UNNA, M.D., OF HAMBURG.

ABOUT six months ago, I received from Mr. Rudolph Schrötter, of Hamburg, a tarry-looking product, obtained by the distillation of "bituminous rocks," for the purpose of ascertaining whether it had any dermato-therapeutic properties. Although in appearance resembling tar, *ichthyol* does not approach any of the known wood- or coal-tars, either in odor (which is quite peculiar), nor in its physical or chemical properties. It constitutes a sort of salve of the consistence of vaseline, which yields an emulsion with water. It is also miscible with vaseline, or with oils in all proportions, is partly soluble in ether, and partly in alcohol, and completely soluble in a mixture of these two liquids. Yet it is only the ether which extracts from ichthyol its peculiar odor. The alcoholic extract has an entirely different odor.

Ichthyol is an artificial product, prepared in a special manner; it is not simply a purified natural product, like our tars. It is produced from the products of the distillation of the "bituminous rock," by an energetic treatment with concentrated sulphuric acid. The crude product of distillation already contains two to three per cent of sulphur; and by the subsequent treatment with sulphuric acid the percentage of sulphur is raised to about ten. Besides, it appears that the generated "ichthyol" has acquired a considerable proportion of oxygen, as is evidenced by a recent elementary analysis. This is also in harmony with the fact that large quantities of sulphurous acid are liberated during the preparation. Besides sulphur and oxygen, ichthyol contains carbon, hydrogen, and minute quantities of phosphorus.

So far as the chemical properties of the substance are known, two points appeared to me to be especially of importance: namely, 1. that *ichthyol* is to be regarded as equivalent to a sulphur ointment containing about ten per cent of sulphur; and 2. that the sulphur appears to be so intimately combined with the other constituents in it, that it could, so far, be isolated from it only by destroying the ichthyol itself. By the last-named property, therefore, it differs essentially from sulphur preparations previously used. Naturally, our knowledge of its action will probably become more definitine and enlarged, whenever its chemical constitution will be better understood. At present, the consideration of the above-mentioned points sufficed to induce me to try it carefully in cases of psoriasis.

[From the rest of the paper, the following is abstracted:]

During the study of the effects of ichthyol, I made the same observation which I had previously made with all other sulphur preparations, viz., that the sulphur treatment in eczema is only effective if the treatment—no matter in what state of the disease—is begun with preparations of only a moderate strength of sulphur, and, as soon as the healing and drying effect is noticed, followed by preparations of a constantly decreasing strength. Only in this manner does eczema heal uninterruptedly under sulphur treatment.

The author does not recommend to use pure ichthyol, but says that he prefers to use, in the case of adults, a forty to fifty per cent solution ichthyol in vaseline or lard, and a two to ten per cent solution in the case of children. He has, however, obtained excellent results with the undiluted substance in some cases, and has also applied it successfully by means of a spray of alcohol and ether.—From *Monatshefte für praktische Dermatologie*, 1882, 328.

Separating Funnel and Apparatus for estimating Fat.

BY A. GAWALOVSKY.

In order to separate liquids of different specific gravity, which do not dissolve in each other (oils, fatty acids and water, fusel oil and water etc.), I employ, in place of the ordinary separating funnel having one stop-cock, a separator of the construction shown in Fig. 1 and 2. As will be seen, the main difference consists in the two stop-cocks inclosing a small expanded space between them.

On separating two immiscible liquids in an ordinary separating funnel, it often happens that the oil- or water-line is not sharply defined, a more or less high layer of a semi-emulsionized mixture being found at the line of contact. If the lower layer is allowed to flow out until the upper touches the stop-cock, it frequently happens that some of the fatty oil, etc., is carried down along with the water. Any globules retained within the stop-cock will be displaced downwards by the water accumulating above it, and will cause either a loss of substance or necessitate a fresh separation.

Fig. 1. Fig. 2. Fig. 3.

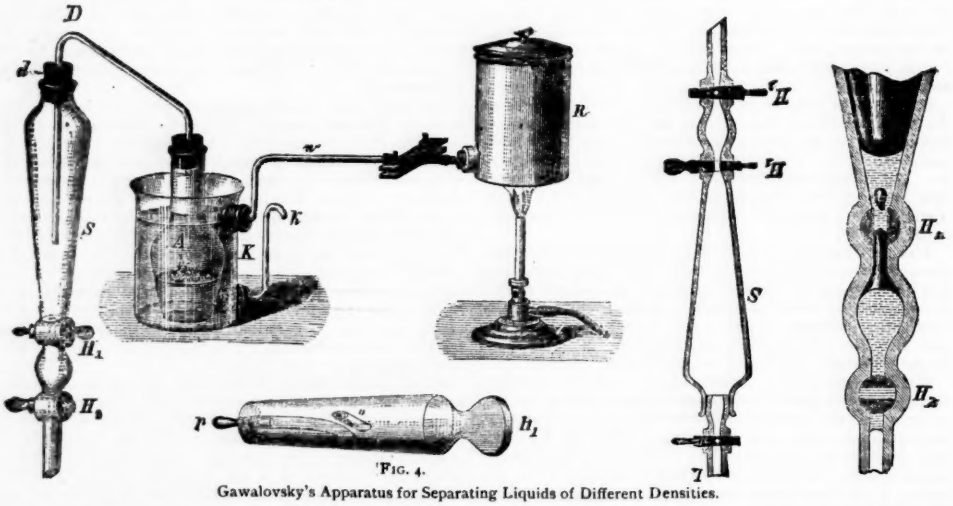


Fig. 4.

Gawalovsky's Apparatus for Separating Liquids of Different Densities.

This drawback is avoided, if my apparatus is used. Stop-cock H_2 being closed, and H_1 (the separating faucet proper) being open, all oil-globules which have been carried through H_1 gradually ascend again in the column of water above H_1. The latter is then closed, H_2 is opened and, while H_1 is again cautiously opened, the water is allowed to run out until the whole layer of oil, free from every trace of water, stands above H_1.

Now, while the space between the two stop-cocks, the perforation of H_2 and a portion of the lower end of the tube are still filled with water, and while H_1 is shut off, the small plug closing the longitudinal perforation in H_1 (see Fig. 3) is withdrawn, whereby a communication is established between the outer air and the space between the faucets. The entrance of air permits the whole of the liquid accumulated under H_1 to be drawn off. Finally, the oil may be drawn off pure and unmixed with water.

In many cases, particularly when working with free fatty acids, there remain particles of oil or fat adhering to the walls of the separating funnel, which—when working quantitatively—must be washed off with ether, benzin or some other liquid. It is often necessary to use a considerable quantity of solvent, and the manipulation is often expensive and tedious.

To obviate this difficulty, I employ the apparatus shown in Fig. 4. The flask *A* contains ether or benzin. Water is heated in the tin-vessel *R*, usually to a temperature of 70–80° C. [The temperature must be regulated according to the nature of the fatty acids in *S;* if stearic acid has become adherent to the walls, it is best to raise the water to boiling.] The hot water flows through *w* into the beaker, the current being regulated by a pinch-cock, and the vapor of the heated ether passes into the separator *S*. *D* is connected by *S* by a loosely-fitting cork, which is best provided with a longitudinal groove, to permit the escape of expanded vapors. H_1 and H_2 are closed. The hot ether vapor dissolves the fatty acids, becomes condensed with them, and the solution may be drawn off. This process of "steaming" is repeated until a drop of the condensed ether ceases to produce a fatty stain upon blotting paper.—*Zeitsch. f. Anal. Chem.*, 1883, 31.

How to Dry Plants.

Mr. Leo H. Grindon gives, in the *Field Naturalist*, the following very simple and somewhat novel method for securing perfect herbarium specimens of plants which are usually difficult to preserve in a condition of any value even with the expenditure of much time and patient labor. Obtain a half-dozen pieces of stout mill-board, cut to about 12x18 inches. Then gather about a hundred old newspapers, and fold them neatly to about the dimensions of the mill boards. Four or five yards of common white cotton wadding, a score of sheets of tissue paper and as many of blotting paper, all cut to the same size, complete the apparatus. One of the boards serves as a foundation; on this place a newspaper, then a piece of wadding, and upon this place the specimen intended to be dried. The cotton being soft and retentive, every portion can be laid in a proper and natural way, including the petals of flowers. A newspaper above—two or three if the specimens have thick stems—and so on, until all the specimens have been similarly deposited. If the specimens are sticky, or hairy, or of a kind that the wadding seems likely to adhere to, then, before depositing them on it, introduce a half sheet of tissue paper. A heavy weight must be placed on the top of all, sufficient to imbed the specimens in the wadding; then leave the whole to rest for twenty-four hours. All the papers must then be changed, dry ones being put in their places; and if the plant seems to throw off a very considerable amount of moisture, such as will render the wadding quite damp, change the wadding also. A second, or even a third change is desirable at the end of two or three

days, or a week, and when this is made, introduce the blotting-paper, pressing again till everything is perfectly flat, and the specimens are absolutely dry. The writer says that, when thus dried, every petal and leaflet retains the form it had in life, and nine specimens out of ten preserve their color exactly. To insure the keeping of color, it is well, if time can be spared, to change the blotting-paper many times, and to dry it thoroughly before a fire; this, however, need not be done until after the third day.

Orange-Tree Scales.

MR. E. TIDMARSH, Curator of the Botanic Gardens, Grahamstown, South Africa, writes the following to the *Journal* of that city:

"This destructive pest, of which at least two species find a home on the branches and foliage of the citrus family, injures the trees in various ways, directly and indirectly. The most direct damage is caused by the extraction of the sap of the tree. In addition to this, the 'scales' at length become so numerous as to cover the smaller branches with a coating composed of living and dead insects, and thus exclude light and air from the bark. If a badly-infected tree is closely inspected in a good light, small shining specks will be seen scattered about the upper surface of the leaves. These bright specks are tiny drops of a sweet liquid, excreted by the scale and commonly known as 'honey dew.' This sweet matter is one link in the chain of indirect damage to the trees, as it forms a fertile soil for the growth of a black fungus, which at length spreads over the leaves in a layer of soot like matter of about the same thickness as the leaf itself, with which, however, it has no intimate connection, as may be seen on rubbing the leaf between the finger and thumb, thus removing the fungus from its surface and showing a bright-green leaf apparently uninjured. This is no doubt in great measure due to the fact that the honey dew is deposited on the upper surface of the leaf only; the under side is therefore free from the black fungus, and is thus able to perform its functions. The 'scale' does not stand alone in sucking out the sap of plants and converting it into honey dew, since the insect known to gardeners as 'green fly' (*aphis*) produces it more copiously than the scale (*coccus*). This latter insect is not found in quantity on the quite young shoots of the orange. The reason of this is not difficult to discover, and is found in the fact that the rate of growth of the shoots is rapid, while the progress of the scale is slow; nevertheless, the young shoots suffer equally with the older growth, but from another cause. At an early stage of the growth a fresh enemy appears in the form of a species of *aphis*, a small black fly, almost covering up the points of shoots from sight; these puncture the shoots and leaves, sucking out the sap and excreting honey dew in such abundance that the foliage of the tree is shortly black with the consequent crop of fungus.

"The presence of fungus in the foliage of the orange and other plants is not always to be taken as a sign that *scale* or *fly* is also to be found on the same tree, but may be the result of the ravages of one or other of these parasites on large trees or climbing plants, beneath the shade of which the plants in question may have been growing.

"An extreme example of this has come under my observation this autumn. The foliage of the large oaks in the garden is suffering from a severe attack of *aphis*, so much so that I have seen the honey dew *falling in a shower* upon all below, including some hundreds of newly-dug orange trees, which had to be at once shifted to more open quarters.

"When scale is present on any tree, there will be found ants in any numbers feeding on the aforesaid sweet matter, and further serving their own ends by transporting the producers of it to fresh feeding grounds."

REMEDY FOR SCALE ON FRUIT TREES.

The following particulars are for an application for the cure of scale on orange trees, camellias, gardenias, apple trees, etc.:

Into a round-bottomed iron pot put eight pounds of soft soap and two quarts of paraffine oil; place the pot over a rather slow fire, consisting of embers only; now with a stout stick vigorously stir the mixture *till the soap has absorbed the whole of the oil;* to the resulting paste add twenty quarts of water, boiling, if convenient; the mixture can now be left to simmer till the whole of the soap is dissolved, the result being a milky fluid, with little or no oil visible on the surface; the pot may now be taken off the fire and stood aside till the liquid is cooled down to about new milk heat. The mixture may now be applied to the infected trees, a garden syringe being used for the purpose; the application should be so managed that every part of the tree may be covered with a thin film of the mixture; to effect this with as little waste as possible, screw on to syringe, before using it, the rose end having the smallest holes; from which drive the mixture with force through and about the foliage and branches of the tree.

When the plants to be dressed are in pots, let the branches of the tree be held over some vessel, such as a tin bath or a packing case with a zinc lining, in order that waste of the mixture may be avoided as much as possible. Before removing the plants from over the vessel, shake the branches so as to dislodge any superfluous mixture, then place the plants in a horizontal position till nearly dry, and thus prevent the oily matter running down the stems of the plant into the soil.

Any portion of the liquid that may not be used at the time of making will keep good for months; a scum will form on the surface, but that will disappear on again warming and stirring it. This mixture is not at all difficult to concoct, but to insure a good result it is absolutely necessary to strictly observe the few words printed in italics.

It is hardly necessary to observe that the number of pounds of soap and quarts of paraffine and water are simply quoted as proportions; the number of gallons of mixture made at any one time would be in accordance with the number and size of the trees requiring dressing.—*Scient. Amer. Suppl.*

False Senega Root.

M. CHARBONNIER recently received from a Paris house a bag of Virgina senega root labelled "Extra." At first sight, his attention was attracted by a somewhat large number of roots of a whitish hue and of a peculiar shape. On a closer examination, the strange roots turned out to be those of a false ipecacuanha, the *Ionidium Ipecacuanha*, one of the Violaceæ, growing in Brazil. This root, which in some respects resembles that of the Polygala, has no commercial use, and is therefore little known. The amount of adulteration in this particular sample was fifteen per cent. The general character of the adulterant affords an easy means of distinguishing it from the true senega root. The roots of the *Ionidium* are grayish-white, with still paler fissures. The pieces are from two to two and a half inches long, and are about as thick as a small quill, and are more irregular and crooked in their outline than the true root. They are both longitudinally and transversely fissured more or less deeply. The bark is hard, very adherent, and the meditullium is very much developed, hard in texture, and of a yellowish color. The false root has also a kind of keel running along the whole of its length. The author, who is one of the official drug inspectors of the department of Calvadors, while performing his usual duties, has met with a large number of samples of senega root adulterated with this species of *Ionidium*.—*Rép. de Pharm.* and *Chem. Journ.*

Formamid of Mercury.

THIS is a new preparation of mercury proposed by Prof. O. Liebreich as especially adapted for hypodermic use. Given internally, the drug is said to be inert, but thirty injections of a one-per-cent solution are said to suffice for an ordinary case of syphilis. We are not yet informed of the formula for preparing this new remedy.

The Liquidambar or Sweet-Gum.

THERE seems to have been great diversity of opinion amongst the older botanists as to the natural affinities of this genus. Some included it in a large and incongruous order, including all those trees with catkins, as oaks, beeches, willows, and planes. Some made it an order by itself, called Balsamaceæ; more recent authorities, however, class it with the witch hazels of North America. The catkins of the female flowers are globose, and resemble those of the plane externally. The trees themselves that are hardy in this country (England) are much like maples. Apparently only three species are known, inhabiting the warmer parts of North America, Asia Minor, and the South of Asia, especially Java.

Liquidambar styraciflua is the best known species in this country (England), and the most ornamental. It inhabits the United States, extending southwards into Mexico, where it attains its maximum dimensions in swampy or wet places, near rivers. Thirty or 40 feet is the average height of the tree in this country, but if planted in a sheltered, moist place, it attains the height of 60 or 80 feet. It grows slowly, and with a little attention can be kept in pyramidal shape, forming at once a highly ornamental and interesting tree for the lawn or pleasure ground; or, if planted near the margin of large clumps, or on islets on ornamental water, it could not fail to be productive of the most pleasing effects. The leaves are acutely five-lobed, and serrated with woolly tufts at the conjunction of the veins beneath. They have a dark-green leathery appearance, and when ripening in autumn become a blaze of deep purplish-red and orange. The bark is corky and fissured, but at a little distance is hidden by the dense leafage. Beneath the bark all parts of the tree are pervaded by a resin of a sweet balsamic fragrance. This substance is most highly developed in warm countries, and exudes spontaneously from any wound in the bark. It is of a clear or amber transparent color, whence the generic name of the tree from "liquidum," fluid, and "ambar," amber.

The best is obtained by purposely making incisions in the bark, and a second-rate quality by boiling the bark and branches, when the oily material floats on the surface and is skimmed off. Another mode of obtaining it is by putting the inner bark in a bag and submitting it to pressure. This substance is used medicinally in several countries, and to a small extent in this. It is supposed to possess healing and balsamic properties, and in some degree to be stimulating and expectorant, while an oil extracted from the same substance is used in perfumery. The heart-wood of the tree is dark, with a beautiful compact grain, and furniture made of it has a handsome appearance. The product of this, as well as the following tree, has superseded the storax of the ancients, which was obtained from styrax officinale, a low tree inhabiting South Europe.

L. imberbe, otherwise known as *L. orientale*, a low tree inhabiting Asia Minor, seldom exceeds 6 feet in height in England. It bears considerable resemblance to *Acer campestre*, the common small-leaved maple. The leaves are much smaller than those of *L. styraciflua*, with shorter blunter lobes, and glabrous beneath; hence the specific name "imberbe," beardless. As an ornamental tree it is much inferior to the North American one, but interesting on account of its relationship. Although presenting the appearance only of a bush in tree form it is worthy of a place amongst other deciduous subjects, or as an isolated specimen on grass where a large tree would be inadmissible. Its economic uses are the same as that of the former tree.

L. altingiana is a noble tree, inhabiting the forests of the West of Java, where it attains the height of 200 feet, and is found at elevations of 2,000 or 3,000 feet. The wood is reddish, and afterwards brown, of a beautiful compact grain, and, like its congeners, redolent of a grateful balsamic odor. The leaves are ovate-oblong, acuminate and serrate, quite a different type from the other species. As might by expected, it is not hardy in this country. *L. chinensis*, sometimes seen planted against a wall in the open air, appears to be synonymous with this species. In severe winters it is killed to the ground.

The hardy species are propagated by layers, or imported seeds—preferably the latter, because trees produced from layers seldom or never make such handsome specimens as those from seed.—*The Observer.*

Poppy Cultivation in Persia.

FROM a recent report on the trade of Persia it seems that silk, once the staple produce of the country, is not likely to maintain its position much longer. Owing to the silkworm disease, which destroyed crop after crop, the peasantry of Ghilan have turned their attention to the cultivation of rice, which, as a crop, seems to suit them better, at is requires less trouble to cultivate, and is, moreover, in itself an article of food upon which they principally subsist; it is also extensively exported to Russia. Another article which has replaced silk is opium. In Kermanshah, until ten years ago, the cultivation of opium was very limited, not exceeding 675 lb. a year, required for local consumption. Last year's crop yielded about 13,500 lb., and it was expected that this year's would realize double that quantity, but it was affected by cold, and consequently did not realize more than 9,450 lb. From Ispahan it is reported that this year's crop has been partially injured by cold, but that it is richer in juice than that of the preceding year. No change or improvement, it is stated, has taken place in the preparation of the drug, beyond a large admixture of oil introduced to suit the taste of the Chinese, the proportion being about 6 lb. or 7 lb. to each chest of 141 lb. Very low prices were obtained in foreign markets for Persian opium last year, in consequence of which it is said by some that unless prices rise in China the poppy cultivation will not be further extended. The drug is prepared at Ispahan, Shiraz, and Yeza. After being dried in the sun it is manipulated. That destined for China is mixed with oil; that sent to London is exported in its pure state. Persian opium is reported to have lost in the estimation of the Chinese; from this it may be inferred that adulteration must have considerably increased. In Khorassan the cultivation of the Poppy has increased tenfold within the last ten years. It grows everywhere in cold as well as in hot districts; every landed proprietor cultivates it, and it may be said that one-eighth of the entire produce of Khorassan is poppy. In Yeza it seems that this year's crop suffered much from cold, resulting in the produce of about half last year's crop. The oil used for mixing with the drug destined for China is linseed oil.

Potato Ivory.

THIS new "vegetable ivory" is made from ordinary potatoes—provided they are tolerably sound and fully developed—by purely chemical means. The selected tubers must first be carefully peeled and the "eyes" cut out, all "spongy" and discolored portions being also scrupulously pared away. The peeled tubers should then be allowed to soak for a short time, first in plain, then in acidulated water, sulphuric acid being the agent employed, and the mixture should be quite cold before the potatoes are put into it.

The next and most important part of the process, is that of boiling the vegetables in diluted sulphuric acid for a considerable time, herein lying the gist of the invention, the secret of which is kept rather closely at present, but a short series of well organized experiments would probably enable any of our friends to elucidate the question.

The variety and age of the vegetable itself, the time for which it is subjected to the action of the acid, and especially the strength of the latter, are all matters of great importance to the object in view, as affecting the quality of the preparation. As some little guide, however, we may bear in mind the process for "parchmentizing" paper, which is effected in the cold, and also the fact that heat greatly enhances the action of all acids upon organic substance, so that as the potatoes, according to our advices, have to be "boiled" in the liquid, a comparative more dilute acid should probably be used.

Treated in this way, the entire substance of the potatoes hardens and becomes gradually less pervious. When "done" they are to be taken out and washed in a stream, first of warm and afterward of cold water, the subsequent dying process being in all instances a slow and gradual one.

Potato ivory thus prepared is not very unlike the ordinary "vegetable" kind, but it is said to be of a more even "grain," as well as easier to turn, while it is not liable to split when exposed to the influence of a very dry atmosphere.

Potato ivory is of creamy white tint, hard, durable, and elastic, it being even adapted, it is stated, for the manufacture of billiard balls. There is no difficulty in dying or coloring the material, either during the process of preparation or afterward, and altogethar it would seem that this new product is one which is capable of an immense number of useful applications. To its other qualities it adds that of being exceedingly cheap. We should have said before that the sulphuric acid used must be quite free from impurity, even traces of nitric or hydrochloric acid being detrimental.—*Monthly Magazine.*

A New Ureometer.

MR. DANNECY, of Bordeaux, describes in *L'Union Pharmaceutique* of Nov., 1882, a new ureometer, which may be employed for the estimation of the nitrogen of most nitrogenized compounds.

It consists of a glass-tube closed at one end, having an interior diameter of 3 centimeters, and a total length of 50 *cm.* 10 *cm.* below its orifice, it expands into a bulb which the author called "mélangeur" (mixer), and 2 *cm.* below this begins a scale in centimeters and one-tenths graduated on the tube. The orifice of the tube is closed by a rubber stopper carrying a perfectly air-tight glass-faucet.

A trial experiment to test the accuracy of the apparatus and of the graduation may be performed by means of a standard solution of sulphate of ammonium, containing 0.1 *gm.* of the salt in 5 *cc.* of solution.

At first, 10 or 12 *cm.* of a solution of hypobromite of sodium are introduced into the graduated tube by means of a funnel having a long tube; on top of this solution is cautiously poured, without shaking or causing the liquids to mix some distilled water* in several small successive portions, until it has reached the mark of the division at 5 *cm.* On top of this is then added 5 *cm.* of the standard solution of sulphate of ammonium. The rubber cork is next inserted while the faucet is open, and the latter then immediately closed. The whole apparatus is now inverted, and the contents skaken up four or five times—the stopper and faucet being held downwards. Whenever the liquid becomes clear and is still slightly colored yellow, it may be presumed that all the gas has been separated and that there still exists an excess of hypobromite of sodium, which is essential to the success of the experiment.

The faucet is now carefully opened, while the tube is still held upside down, whereupon the excess of liquid is pressed out by the gas. [The original fails to state that the faucet should be opened under the water; but this appears to be necessary.] The level of the liquid then indicates, in *cc.*, the volume of the gas at the particular temperature and pressure at which the experiment is made.

From these statements it follows, that any nitrogenized organic matter may be assayed by the above process, if a weighed quantity of it be heated with soda-lime, and the generated ammonia then conducted into diluted sulphuric acid. This solution is then decomposed by the hypobromite.

Supposing we had obtained, with 5 *cm.* of the normal ammoniacal solution, 18 *cm.* of gas, and with an unknown solution 22 *cm.* As we know that 0.1 *gm.* of sulphate of ammonium at 0° C. and at a pressure of 760 *mm.* furnishes 16.8 *cc.* of nitrogen; we have the following equation:

$$16.8 : 18 = 22 : x.$$
$$x = 25.5.$$

Now, as 1 liter of nitrogen weighs 1.26 *gm.*, the 25.5 *cc.* weigh 0.0296 *gm.*, and this is the weight of the nitrogen contained in the substance.

[NOTE BY ED. N. R.—A process based on the above, or on some similar method of nitrogen determination, promises to afford perhaps better results for the assay of spiritus ætheris nitrosi than the permanganate process so commonly followed. We throw out this hint to some of the younger members of the profession, who might exercise their skill and ingenuity in devising a simple and satisfactory process.]

*DR. Méhu has advised the addition of about 1 part of glucose to every 20 parts of distilled water, since he found that this mixture gave up the gas more rapidly than distilled water alone.

Removal of Stains of Bichromate of Potassium.

THOSE who work in chromic acid or bichromate of potassium are apt to acquire stains of the hand which are both disagreeable and persistent. *The Photographic News* gives the following directions for their removal: Rub the stains with a solution of sulphurous acid, and subsequently wash with distilled or soft water. Or, to a warm, strong solution of hypo-sulphite of soda add a small quantity of sulphuric acid; this may then be used on the stains with similar effect.

Administration of Aspidospermine.

THIS active principle of quebracho bark which has lately acquired some reputation for the relief of difficult breathing attending asthma, emphysema, phthisis, etc., is given in doses of about one-third of a grain; the dose of the bark being about half a drachm. Eulenberg gives in the *Medicinal Kalendar* for 1883 the following formula for its exhibition:

Aspidospermine	gr. xv.
Distilled water	fl. ℥ iss.
Sulphuric acid	q. s.

to make a solution.

M. Dose, 15 minims.

Asbestos Capsules.

ASBESTOS has, in recent times, been variously utilized for the preparation of chemical utensils requiring the application of a high heat. Casamajor, for instance, has used it as filtering material for retaining precipitates which, after being washed, are to be ignited. C. Weigelt has employed it, in the shape of plates or disks, for uniformly heating flat-bottomed vessels. J. Bering, of Bromberg, desiring to obtain asbestos-plates of a concave shape, so as to fit the external form of evaporating dishes or capsules, and not being able to procure such from any dealer, succeeded in preparing them in the following manner:

A flat asbestos-plate (such as may be had in the trade, Neddermann of Strassburg, for example—but which may be made from fibrous asbestos by a process similar to that described by Casamajor in NEW REM., 1883, p. 45), is covered in a flat-bottomed vessel with cold water, so that it is a few millimeters below the surface of the latter. After two, or at most three, minutes (a longer soaking would dissolve the binding material contained in the plates sold in trade), the plate is removed, and, after the water has drained off as much as possible, it is, while still moist, thoroughly rubbed with

talc on both sides. A porcelain-capsule, corresponding in size to the asbestos-plate, is also well rubbed with talc, or with oil, and the soft asbestos-plate then evenly pressed with the hand against the outside of the capsule, any wrinkles being smoothed down with some hard substance or with the thumb-nail. If the plate is to be made still more concave, it is afterwards pressed against the inside of the capsule, particular care being taken to press it evenly and to smoothen it near the bottom. The asbestos-capsule may now be dried by exposure to the air, or more rapidly, in an air-bath which is at first heated slowly, but afterwards as high as possible. It thereby becomes quite hard and acquires a "ringing" sound when it is struck with a hard substance.

It is essential, after soaking the asbestos-plate in water, to remove all air-bubbles, before pressing it into the desired form.

Asbestos-capsules thus prepared form an excellent substitute for the sand-bath.—*Repert. d. Anal. Chem.*, 1882, 297.

Ammoniacal Extract of Ergot.

BY A. W. GERRARD.*

TAKE 10 parts of crushed ergot, macerate it for eight or ten hours with frequent stirring in 50 parts of cold water, containing ½ per cent of strong solution of ammonia; then throw it upon a flannel strainer, and allow it to filter. Wash the ergot from time to time with more ammoniacal water, till sufficiently exhausted. The filtrate, which is somewhat turbid, is evaporated to 5 parts, any scum or fat rising to the surface being carefully removed. The extract when cool is treated with an equal volume of aromatic spirit of ammonia, and the product set aside until subsidence is complete; the clear portion is then decanted and the residue filtered through felt or flannel, washing the deposit with a little more spirit, so as to bring the volume of the extract to 10.1 part fluid, thus containing the soluble matter of 1 port solid of ergot. In appearance this extract is much darker in color than the ordinary form, the odor is mainly ammoniacal, and the average specific gravity 1000.

A sample I have kept for nearly a year does not appear to have undergone any change. The dose is the same as the ordinary liquid extract.

In studying the above process, it may strike some observers as somewhat curious to use ammonia as a solvent, and then to dissipate it by evaporation, but it must be remembered that the ammonia is not eliminated until its work has been accomplished, and what therapeutic use it might have exerted is compensated for by the addition of the aromatic spirit. In the process of manufacture, whilst evaporation is proceeding, it will be noticed that not only albumen and coloring matter separate, but a considerable quantity of oil. The presence of this oil is acconted for by the formation of a soap between the ammonia and ergot fat during maceration, the soap remaining in solution whilst cold, but being decomposed by heat.

This extract, as regards its therapeutic value, has had a thorough trial in the obstetric department of University College Hospital, and has given general satisfaction, Dr. John Williams, one of the obstetric physicians, having requested it to be substituted for the ordinary extract in such mixtures as contain ergot.

To enter into a discussion as to why ammonia improves or increases the action of this drug is scarcely within the domain of pharmacy, and published therapeutic memoranda on this point are wanting. From inquiries I have made, it appears, as the result of numerous observations, that the ammonia develops a rapid action of the drug by acting as a nerve stimulant, which action is very useful during that period when the patient has to undergo that painful and trying ordeal for which ergot is so extensively employed. To this must be added the great solvent power of the ammonia, which insures a most complete exhaustion of the active principles of the drug.

* Abstract of a paper read before the British Pharm. Conference.

Dropping Bottle.

MR. LAMPRECHT, of Marienhütte-Knarenburg, has invented a new dropping bottle, which is simple and ingenious. As the cut shows, the stopper of the flask is conical and has ground upon it, from near the narrow end, two grooves, exactly opposite to each other, and reaching to about two-thirds the height of the body of the stopper. The neck of the flask is provided with a small projecting channel and dropping point. When the stopper is inserted

in the position shown in the cut, the flask is hermetically closed. On turning the stopper half around, however, one of the grooves in the stopper attains a position over the channel, while the other groove is opposite the small hole in the other side of the neck of the flask. On inclining the flask, air enters the latter through the hole, and the liquid issues in drops from the spout.—After *Ugeskrift f. Læger* (Kjobenhavn), 1882, 356.

Prescription Scales and Weights.

IN a paper by Mr. W. B. Thompson, in the *Amer. Jour. of Pharmacy*, on this subject, the writer says that as a result of personal examination of a number of dispensing counters "it was the exception to find weights of less denomination than two grains, and from this standard up to scruples and drachms, dirt and accumulated corrosion rendered their denomination almost illegible." He declares that every pharmacist should be "provided with an accurately-adjusted balance for prescription weighing; not such as is needed in analytical investigations, but a good, practically-constructed balance, capable of weighing with accuracy one grain."

"The fractions of this unit can easily be made by mechanical subdivision in the usual way—by placing the weighed portion upon a piece of glazed paper and dividing with the edge of a small spatula; practise will quickly make perfect in this, and the apothecary, with the expenditure of no more than ordinary care, need have no fear of error. The inaccuracy of the prescription scale is mainly due to neglect and careless misuse. The instruments are, doubtless, all good enough at the start, and

should receive the same scrupulous attention as the vest-pocket chronometer. The prescription scale, being viewed and made as a delicate piece of mechanism, should not be misused, and a good rule is not to subject it to a heavier weighing than, say, twenty grains; this saves it from incessant use. For all other purposes between this weight and that of a half ounce, the ordinary hand-scale, with pans suspended with silken cords, is most convenient and best adapted."

The direction for holding given by Mr. Thompson seems to us to be incorrect. Instead of holding the beam-support between the left thumb and forefinger, and the scale raised almost to a level with the eye, a better plan is to insert the tip of the left forefinger through the ring, so as to support the scale and its contents; the thumb and second finger should then grasp the sides of the beam-support and hold the index so that it will not vibrate. This keeps the beam steady during the process of filling the pans. The weights should be placed in the pan toward the left, and with the aid of a small spatula, the pan on the right may be loaded. By relaxing the grasp of the thumb and second finger, the index is left to vibrate sufficiently to indicate the equipoise of the pans. Such a scale as is here referred to is shown on the title-page of NEW REMEDIES, accompanying each December number. Horn pans are better than brass or nickel, since they are less liable to become corroded, and can be cleaned with the least labor. It would be well to keep such scales in a drawer or box when not in use, but practically it is found to be better to hang them on a nail or peg of wood; not by the ring, but by the junction formed by the cords at one end with the beam—somewhat in the manner shown in the illustration referred to; the beam-support and pans, however, being allowed to hang free. When thus suspended, the scale is out of harm's way, and yet within immediate reach.

In the matter of weights, it may be said that aluminium, owing to its greater bulk, is better adapted than brass for small weights, their greater size rendering it easier to handle them. It is never necessary in prescription work to handle minute weights with a forceps, as in assay work, to avoid the adhesion of dirt and fatty matter from the fingers; but small weights should always be kept in a small box to prevent loss and to keep them as clean as possible. This receptacle should not be used for weights of a scruple and upwards.—ED. N. R.

Improvements in Letter-Copying.

J. LEWITUS, of Vienna, has made an improvement in the ordinary hektograph, which permits the writing to be rubbed off from the glue-pad as easily as chalk from a black-board.

O. LEHN, of Charlottenburg, has recently patented a process in which a specially-prepared, moistened paper is stretched in a frame, the original writing is placed upon it and left for one or two minutes; after removing it, the negative orprepared paper is spread with ink and the copies are taken.

KOMAROMY, of Buda-Pesth, has patented a process in which a paper, impervious to water, is painted with the following solution: Gelatin, 1 part; glycerin, 5 parts; Chinese gelatin, 0.2 part; water, 1 part. The manuscript is written with the following solution: Water, 100 parts; chrome alum, 10 parts; sulphuric acid, 5 parts; gum-arabic, 10 parts. The manuscript is laid on the first paper, and the surface of the latter is thereby rendered incapable of taking up an aniline color solution with which the first surface is then flowed. Excess of color is absorbed with silk paper, and negative impressions are then taken on clean paper.—*Photographic News*, from *Jour. Chem. Industry.*

Adulterated Linseed Oil.

PROFESSOR DOMINGOS FREIRE, of Rio Janeiro, has lately submitted a sample of adulterated linseed oil to analysis, and found it to contain resin oil, resin, a sulphurretted oil and fish oil. The sample exhibited the property of dichroism, showing a yellowish-red tint by transmission, and a blue by reflection. The resin oil was nearly all separated by distillation, the portion remaining in the retort no longer displaying the phenomenon of dichroism. The presence of resin was proved by boiling for a few minutes with an excess of alcohol of 90°, decanting and treating with neutral acetate of lead, the result being a curdy precipitate showing the presence of resinous matter. The aqueous filtrate was then treated with a solution of silver nitrate which produced an abundant black precipitate. The oil was then submitted to the action of nitrous vapors, and on being set aside deposited a semi-solid reddish-brown mass. The animal oil (fish oil) was detected by passing a current of chlorine through the sample for 50 minutes, which produced a reddish-brown color, passing into violet, blue and black, leaving no doubt as to the origin of the adulterant.—*Mon. de la Pharm. Belge* and *Chem. Journal.*

FIG. 1.

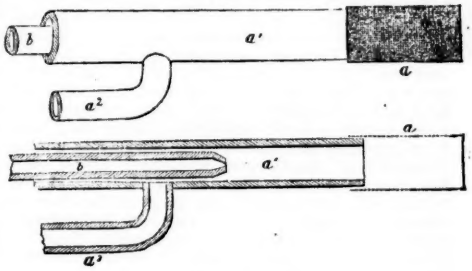


FIG. 2.

A New Burner which gives both Heat and Light.

LEWIS JACOB,* of London, has devised a new burner, which is capable of application for a variety of purposes. Its principle is based on the observation that a mixture of a combustible gas and of air, if somewhat compressed and ignited at the top of a suitable burner within a cage of metallic platinum or other refractory material, raises the metal to a point of incandescence, producing thereby a brilliant light and, at the same time, an intense degree of heat.

The cap to be attached to the mouth of the burner is best made of platinum gauze or finely perforated sheet-platinum. In this case the utmost attainable degree of heat and light results. When the mixture is first ignited, the light is but feeble, but, as soon as the metal begins to become heated, the light increases and finally becomes very brilliant. The combustion, at the same time, is quite perfect, neither smoke nor other disagreeable products making their appearance. The most suitable pressure at which the air should be injected into the gas is about 2 pounds to the square inch. The annexed cuts show the arrangement of the burner, Fig. 1 the elevation and Fig. 2 a section of the same.

a is a cap of fine platinum gauze slipped over the end of the burner. The air or the gas, or both together, may be compressed in the tube a^1 or *b;* if they are compressed in *b*, their issuing from the orifice will attract an additional current of air from a^2.—After *Il Progresso* (Torino), 1883, Jan. 15th.

Black Ink for Rubber Stamps.

Aniline black ..... ½ oz.
Pure alcohol,
Concentrated glycerin, of each ..... 15 oz.

Dissolve the aniline black in the alcohol and add the glycerin.—*Neueste Erf. & Erf.*

**Il Progresso* calls him "Lewis Giacomo," which was wrongly translated thus from "Lewis Jacob."

A Growing Evil.

(Continued from page 65)

ent movement, viz.: Just so far as the medical profession agree upon definite formulas for all the remedies used in practice, does the wholesale manufacturer and dealer benefit himself at the expense of the retail pharmacist, who thereby becomes a mere agent or middle-man. So long as physicians ignore ready-made preparations, and vary the strength of their prescriptions to suit the indications of each case, the manufacture of such preparations on a large scale will remain precarious, and the retail pharmacist who possesses the skill needed for their composition will continue to be a necessity.

It is apparent to all who have given the subject attention, that the custom is growing among physicians of using simpler forms in prescribing, and, in many cases, of prescribing such pharmaceutical forms of remedies as admit of the dose being subdivided by the patient; and it becomes an open question with many physicians, in such cases, which of two courses is most desirable, viz.: to send a patient to a retail pharmacist for his medicine, or to give him his medicine without charge, the physician buying his supply in original packages, and at low rates, of the wholesale dealer. There are other reasons for such a course than merely pecuniary ones, although the latter do exist, and have frequently been referred to, viz.: The patient need not be informed of what he is taking—a matter which sometimes is of considerable importance. Again, in order to procure a fresh supply of medicine, a resort to the physician's office becomes imperative. The doctor, who has a higher interest in the result of his treatment than a merely pecuniary one, is enabled to watch the effect of his remedy, or change it for something else, if need be, and gladly foregoes any pecuniary consideration for the satisfaction of knowing the exact state of the case, and that his directions have not been neglected, and his treatment modified by the advice of some one else.

This view of the case appears to have been overlooked by pharmacists, but it is none the less a serious matter, and worthy of attention on the part of those who desire to elevate the professional status of pharmacists, or establish greater reciprocity of action between the two professions. We mention it not as an argument against the necessity for dispensing pharmacists, but as a fact which really exists and should not be ignored.

It is only a few days since we saw one hundred powders, each containing two grains of a remedy, neatly folded, protected with paraffin paper, nicely packed in a pasteboard box, labelled with the name and strength of the contents, without even an advertisement or business card of the manufacturer, and the whole nicely wrapped in paper, and similarly labeled, which cost *thirty-five cents!* Saying nothing about the cost of the remedy, where is the retail pharmacist who could afford to put up one hundred powders of corn-starch with the same degree of accuracy, and in such style, for the same price, or what inducement can the retail pharmacist offer to physicians, which will lead them to forego the satisfaction of dispensing, gratuitously, such powders when the occasion requires, and let their patients go to any pharmacist—good, bad, or indifferent, who may be most convenient.

In writing the above we have, in some degree, strayed from the main question. To return to it again, we hope that, whatever the Committees on unofficinal formulas may do, they will work carefully, and publish not only the results, but also their reasons for deciding upon proportions and processes. This will, in a large degree, prevent others going over the same ground inefficiently, and recommending processes and compounds that are erroneous.

In conclusion, we wish to reiterate what we have before advised, viz., that in questions like this, involving the co-operation of physicians, some portion of the discussion should be carried on by pharmacists, in medical journals and societies, and not be confined, as is now too much the case, to journals and societies rarely if ever seen or attended by those whose opinions need to be consulted.

Proprietorship in Prescriptions.

THE *Lancet* expresses the following opinion upon the legal right of patients to prescriptions, which is, in the main, in accord to that which we have long held. (Vide NEW REMEDIES of Nov., 1880, p. 321.) A patient received a prescription from a doctor who intimated that it could be made up only at a certain establishment. Some time afterwards, considering himself to be in need of the same medicine, he took the prescription to the same pharmacist, who, however, refused to supply the medicine, on the ground that he had been instructed by the doctor not to dispense it without his sanction, which statement was confirmed on communicating with the latter. The patient contended that the prescription was his property, and that he was free to have it made up every day if he chose to do so, and the editor of the *Lancet* being asked for his opinion on this point, says:

"A medical man is at liberty to make his own terms as to attendance, but the system described in our correspondent's letter is not generally practised or approved. A medical man either dispenses or prescribes. If he prescribes, the prescription ought to be the property of the patient, to be used when or how he pleases, and ought to be written so that it may be compounded by any legally qualified chemist."

Parchment Paper.

BY immersing cellulose for a few seconds in a perfectly cold mixture of two parts of oil of vitriol and one of water, although no alteration of its chemical constituents takes place—except perhaps a purely molecular one—its physical characteristics are greatly changed, it being converted into a leather-like body of great comparative toughness. White unsized paper—itself a tolerably pure form of cellulose—thus treated, goes by the name of "parchment paper," and its tensile strength is increased to some 40 or 45 times that of the original paper used. This form of cellulose is especially well adapted for many purposes in medicine and pharmacy, including "caps" for jars and bottles, sample envelopes, labels, "untearable tallies," and even certain forms of surgical bandages. By treating "parchment" or "Gaine's" paper—as it is sometimes called from the name of its inventor—with a little hot, strong solution of gelatine, to which about 2½ or 3 per cent of glycerin has been added, and allowing it to dry, it may be rendered tolerably impervious to fatty matters, so that it then forms a convenient medium in which to pack small quantities of such substances as ordinarily are apt to "grease the paper" they are wrapped in. The same altered variety of cellulose, if soaked with benzole or bisulphide of carbon holding one per cent of *Ol. Lini* and four of India-rubber in solution, makes, when dry, an admirable and inexpensive waterproof envelope for the preservation and transport of drugs and deliquescent salts. By using an envelope of this description, and when filled closing it carefully with a little stronger solution of caoutchouc, and afterwards placing the same inside a similar one of larger size containing fine, oven-dried oatmeal, even chloride of calcium and crystals of nitrate of ammonium have been forwarded in damp weather, without their having attracted moisture or suffered any appreciable change during transit.—*Monthl. Mag.*

Essential Oil of Atherosperma Moschata.

THIS is manufactured at Melbourne by Mr. Bosisto. The physiological effects of this oil, in small doses, are diaphoretic diuretic and sedative, and it appears to exert a specific lowering influence upon the heart's action. It has been used in some of the European hospitals, and been successfully employed in heart disease, administered in 1 or 2 drop doses, at intervals of six to eight hours.

* Report on the Royal Gardens at Kew.

New Process for the Volumetric Determination of Sulphuric Acid, Free or Combined.

A. GUYARD prepares a normal solution of lead nitrate by dissolving an equivalent (in grams) of this body in a liter of water. The solution containing sulphuric acid, sulphates, or a mixture of both, is placed in a burette graduated into tenths of a *cc.* There are poured into a beaker, provided with a stirrer, 25 *cc.* of the normal lead solution, and it is colored a bright-yellow by means of some drops of potassium iodide. Pour, then, gradually and stirring incessantly, the sulphuric solution from the burette till the liquid in the beaker is completely decolorized. The number of divisions employed correspond exactly to the weight of sulphuric acid necessary to precipitate 25 *cc.* of normal solution of lead nitrate. This process is advantageous chiefly for determining the total acid. If it is desired to determine both the free and the combined acid, the best process is the following:—Total acid is determined as above and the free acid is then found by means of a standard ammoniacal solution of copper. The difference is the combined acid. These processes are recommended only when there is no other free acid except the sulphuric, and when the liquids in question contain mere traces of chlorides.

The author obtains oxygen in the cold by the action of concentrated nitric acid upon potassium permanganate. The gas is given off with great regularity, and if washed in a weak alkaline solution is absolutely pure.—*Mon. Scient.* in *Chem. News.*

Testing for Barium or Sulphuric Acid.

A DETERMINATION of the delicacy of the barium sulphate test gave the following results:—The minimum strength of a solution of barium chloride in which the barium could be detected with certainty was found to be one containing 0.0000012 grm. of barium (= 0.00000135 grm. BaO) per *cc.*, or 1 part of barium in 833,000 parts of water. As the cloudiness produced can easily be seen with 2 *cc.* of the liquid, it follows that the actual amount of barium which can thus be detected is 0.0000024 grm.; equal to 0.0000027 grm. BaO.

In the testing sulphuric acid was used; the reaction did not appear to be rendered more delicate by using alkaline ammonium sulphate; the reagents were left in contact for 5 or 10 minutes before the result was examined.

The best results are obtained by placing an artificial light almost vertically above the test tube containing the liquid, and a black background behind, allowing the light to fall on a portion only of the liquid.—SPENCER PICKERING, B.A., in *Chem. News*, 1882, Nov. 17th.

The Specific Gravity of Monohydrated Sulphuric Acid.

FORMER investigations, chiefly by Marignac* and Roscoe,† have shown that pure monohydrated sulphuric acid (H_2SO_4) cannot be obtained either by evaporation, or by the distillation of the concentrated acid; the residue or distillate being, in each case, a weaker acid containing only about 98.5 per cent of the monohydrate. The pure monohydrate, which Marignac obtained by strongly cooling the most concentrated acid and repeated crystallization of the separated solid, was not found to be stable, but separated anhydride, already at a temperature of 30°–40° C. (86°–104° F.). This dissociation manifests itself not only by its behavior when heated, but also by the specific gravity. Pure, concentrated acid was reduced, by boiling, to about one-half of its volume; the residue contained 80.40 per cent SO_3=98.50 per cent of H_2SO_4, and had the specific gravity 1.857 at 0° C. (compared with water at 0° C.). On distilling this acid, and separately receiving the last portions (of equal composition), they were found to contain 80.50 per cent of SO_3=98.66 per cent of H_2SO_4, with a specific gravity of 1.875 at 0° C. If this acid be mixed with anhydrous or fuming sulphuric acid, *the specific gravity will be lowered*, until the composition of the monohydrate has been reached. The latter was found—by A. Schertel, from whose paper these statements are condensed—to have, at 0° C., the specific gravity 1.854, exactly as previously ascertained by Marignac. A further addition of anhydride causes the specific gravity to increase again, slowly at first, then more rapidly, until the percentage of anhydride amounts to 83, from which point the increase of percentage and specific gravity takes place in regular proportion. The following values were obtained by Schertel:

Percentage.		
Sulphuric anhydride (SO_3)	Monohydrated Acid (H_2SO_4)	Spec. Grav. at 0° C.
80.40	98.50	1.8570
80.54	98.66	1.8575
81.00	99.23	1.8558
81.10	99.35	1.8550
81.63	100.00	1.8540
81.86	100.28	1.8548
82.10	100.57	1.8577
82.55	101.13	1.8640
82.87	101.64	1.8722

The specific gravities of the distilled acid containing 80.50 per cent of SO_3 and of the monohydrate were determined both at 0° C. and at the ordinary in-door temperature. From the data resulted a coefficient for the expansion of the acid, which agreed very nearly with that given by Bineau,* and by means of this the specific gravities of other concentrations were reduced to 0° C.

From the above follows:

1. That a concentrated sulphuric acid obtained by evaporation to the utmost possible point, and one obtained by distillation, possess the highest specific gravity.

2. That the liquid monohydrate already begins to undergo dissociation at 0° C.

The tables of percentage and specific gravity of sulphuric acid, which were published by Bineau, Kolb, and Otto, show a constant increase of specific gravity with increase of percentage of monohydrate. Bineau stated that he did not succeed, either by evaporation or by distillation, in obtaining a pure monohydrate (H_2SO_4), the most concentrated acid obtained by him having the specific gravity 1.855 at 0° C., and containing 98.5 per cent H_2SO_4. From this he calculated, by interpolation, the specific gravity of the monohydrate at 1.857. Kolb and Otto have obtained their values probably in the same manner,† and, therefore, did not notice the abnormal behavior of the true monohydrate.—*Journ. f. prakt. Chem.*, 1882, 246.

In connection with the above, it may be stated that Kohlrausch, who had already a number of years‡ ago made the same observation, has lately again published a series of investigations leading to nearly the same result. He finds§ that sulphuric acid reaches its maximum of specific gravity of 1.8385, containing 97 per cent of monohydrate, at 18° C., that it then decreases slowly to 1.8348, with a percentage of 99.5, and that it thence again rapidly increases: an acid of 101 per cent of H_2SO_4 (or 82.4 per cent of SO_3) having the specific gravity 1.86.

Detection of Fuchsine in Red Wines.

IT has been known for some time that red wine, shaken for some time with an equal weight of coarsely-powdered dioxide of manganese, loses its color. Facen originally stated that this only occurs in genuine red wines, but Wittstein showed that it also took place in wine colored with mallow flowers.

* Ann. Chim. Phys [3], 39, 184.
† Jahresb. d. Chem., 1860, 64.

* Ann. Chim. Phys. [3], 24, 337.
† Kolb at least did *not* obtain his figures in this way, although even he did not succeed in reaching a 100-per-cent acid. His methods of assay and control were distinguished by extreme care and accuracy, and are detailed at length in his original paper, *Bull. de la Soc. Indust. de Mulhouse*, 1872, 209, etc.—ED. N. R.
‡ *Poggend. Annalen*, 8, *Ergänzungsband*, 675.
§ *Annal. der Physik*, 1832 (vol. 17), 82.

P. Pastrovich now announces that the reaction may be used for detecting the presence of fuchsine, whether this be added merely to heighten the color of otherwise genuine red wine or be the sole coloring matter present. Genuine red wine, when treated with dioxide of manganese, becomes almost colorless; so also wine which has been colored by elder and other berries, and by cochineal. If colored with logwood, brazil wood or archil, the tint changes to brownish-yellow. But if fuchsine is present, no change of color takes place, even on heating. The reaction is so delicate that two milligrams of fuchsine may easily be detected in a liter of the suspected wine.—*Ber. d. Deutsch. Chem. Ges.*, 1882, 808.

Reaction o Narceine.

M. ARNOLD says that if we heat a trace of narceine with a mixture of equal parts of sulphuric acid and phenol, we obtain at first a yellow coloration, then a brown, and when the phenol begins to volatilize a fine cherry-color, if the action of the heat is continued. Some drops of water suffice to transform this color into a dirty yellowish-white. Veratrine, if similarly treated, gives the same red coloration, but on the addition of water it gives a canary yellow. Codeine becomes a dirty violet-red, and of a dirty brown if the temparature is raised. Delphinine is at first a brick-red, which turns to a reddish-brown on heating.—*Journ. de Pharm. et Chim.*

The Preparation of Pure Grape-Sugar.

IN consequence of a recently published paper by Soxhlet, in which the latter criticises some previous publications on the estimation of grape-sugar by means of Fehling's and Knapp's reagents, and incidentally treats of the preparation of pure grape-sugar, Mr. Jac. G. Otto, assistant at the physiological institute of Christiania, has published the results of some investigations on this subject, conducted by Professor Worm Müller and himself, from which the following is an abstract.

The best method for preparing grape-sugar is the inversion of cane-sugar with hydrochloric acid in alcoholic solution. This was first proposed by Schwarz,* and was afterwards further improved by Neubauer.† In order to study the method fully, and to ascertain the most favorable conditions for its successful execution, the author made several experiments, differing only in the quantity of hydrochloric acid used. Powdered cane-sugar was gradually, and under constant shaking, added to 600 cubic centimeters of 80 per cent alcohol and 20 (30 and 40 *cc.*, respectively) of fuming hydrochloric acid, until the liquids assumed a yellow tint. During the experiments, the solutions were kept at a temperature of 25° C. (77° F.). The object being to ascertain the conditions under which the *purest* product would be obtained, no attempt was made to saturate the solutions.

The solutions thus obtained were then filtered through filters, moistened with alcohol, into dry, clean glass-flasks, set aside on November 11th, 1880 (two days after the solution had been prepared), to crytallize, and afterwards examined daily. On November 17th, the first crystals of grape-sugar made their appearance in No. 1 (containing 20 per cent HCl), on November 19th in No. 2, and on November 27th in No. 3. The further deposition proceeded rapidly in No. 1, somewhat slower in No. 2, and was quite feeble in No. 3. On January 10th, 1881, when none of the samples seemed to increase any further, the supernatant liquid was poured off as much as possible, and the white crystalline precipitate mixed with 90 per cent alcohol. On the next day the crust in the bottom of the flask was crushed and transferred to a rapid filter. After the liquid had been removed, the residue was rubbed to powder in presence of absolute alcohol, allowed to stand until the following day, then again transferred to the rapid filter, and this process repeated until the washings no longer showed an acid reaction, and a concentrated aqueous solution of the sugar, acidulated with nitric acid, ceased to produce a precipitate with nitrate of silver. The grape-sugar was then dried in a vacuum, and afterwards, for about twenty-four hours, at a temperature of 40° C. (104° F.), over concentrated sulphuric acid, or over chloride of calcium. Thus obtained, the yield of grape-sugar, and the quantity of absolute alcohol used for complete washing were, respectively:

No. 1.....	30 *gm.* grape-sugar,	—260 *cc.*	alcohol
No. 2.....	19 "	" —320	"
No. 3.....	11 "	" —330	"

Both in yield, therefore, and in saving of alcohol, experiment No. 1 turned out to be the most advantageous. This result appears to be contradictory to previous investigations, in which 30 to 40 *cc.* of hydrochloric acid (per 600 *cc.* of alcohol), usually gave a larger yield; but the difference may arise from the fact that the author's experiments were performed at a rather higher (by 5° to 10° C.) temperature.

All the products obtained above were snow-white; when melted with 20 per cent of water they were perfectly colorless, even in thicker layers, and were found to have the same melting point, after drying at 100° C., viz., 146° C.

The author mentions some special precautions which must be observed in drying the sugar. If the latter, after being dried at 40° C. (as directed above), were at once put into a water-bath of 100° C., it would often (though not always) occur that a portion of the sugar would melt, in consequence of the excess of water it contains, and thereby become unsuited for further use. It is, therefore, necessary to gradually raise the temperature from about 40° C. (104° F.) to 100° C. (212° F.), which consumes a comparatively long time, when larger quantities are under preparation. The author is in the habit of transferring the sugar from the filter-pump into a temperature of 25° to 30° C., and then gradually to raise the temperature.

By completely saturating a mixture of 600 *cc.* of 80 per cent alcohol and 20 *cc.* of fuming hydrochloric acid with cane-sugar (of which usually 300 *gm.* are taken up), at a temperature of 25° C. (77° F.) during three or four weeks, a yield of nearly 50 per cent of the original cane-sugar was obtained.

It next became necessary to ascertain, whether the product thus obtained was perfectly pure, or whether it required to be recrystallized; and, if so, whether absolute alcohol (proposed by Schwarz) was the best menstruum, or methyl alcohol (proposed by Soxhlet).

While the above method of preparation may be objected to, on the score of tediousness, that recommended by Soxhlet leads more rapidly to the desired end. But the resulting product—as Soxhlet himself acknowledges—is not pure, and requires recrystallization. On the other hand, it will be seen that the product obtained by the above-described process is so pure that it does not require recrystallization.

If the sugar needs to be recrystallized it is first boiled, under an upright condenser, for five to ten minutes, with a somewhat smaller quantity of absolute alcohol than is necessary for its complete solution. The solution is next filtered through a hot filtering apparatus (kept at 100° C.) into a flask which is closed with a cork, and at once placed under a stream of cold water. After a few minutes, generally, the crystalline sugar begins to separate, without the preliminary formation of a syrup (which Soxhlet experienced). When quite cooled off, the flask is exposed for twenty-four hours in a cold place, after which the separated sugar is removed by means of a glass-rod to a rapid filter, washed with a little absolute alcohol, and then dried, first over concentrated sulphuric acid in vacuo, and afterwards, for a short time, in an air-bath, the temperature of which is gradually raised from 50° to 100° C.

Or, the sugar may be boiled for five or ten minutes with an amount of methyl alcohol (sp. gr. 0.810 at 20°, and specially redistilled) insufficient to dissolve it. On cooling the flask with cold water, crystallization begins at once. The crystallized sugar, in this case, is more bulky than

* *Dingler's Polyt. Journ.*, 205, 427.
† *Zeitschr. f. Anal. Chem.*, 13, 191.

that obtained with absolute alcohol, and is more easily removed from the flask.

The three kinds of sugar, that obtained by the author's first-mentioned process (which was not recrystallized), and the two kinds recrystallized from ethylic or methylic alcohol, were found to have the same chemical properties, melting point, polarization, and other physical properties. —*Journ. f. prakt. Chem.*, 26, 87.

The German Pharmacopœia Test for Liquid and Solid Paraffin.

THE new German Pharmacopœia requires, among other things, that the "Liquid Paraffin,"* also called "white vaseline-oil," which forms a constituent of the paraffin-ointment, when digested on the water-bath during one day, under repeated agitation with "sulphuric acid," shall not be altered, and should not impart more than a faint brown color to the acid. Now, as there is no special spec. grav. mentioned, the "sulphuric acid" of the text can only mean the officinal acid, which has the spec. grav. 1.836 to 1.840. But it has been ascertained that even the purest and best kinds of the commercial vaseline oils (spindle oils) do not stand this test. Prof. R. Fresenius, of Wiesbaden, whose attention has been drawn to this by a communication of Mr. Ullmann, apothecary at Fulda, in the *Pharm. Zeit.*, examined many kinds of the oil, and found none which would pass muster. Evidently the Pharmacopœia Commission erred, either in not selecting sulphuric acid of a lower specific gravity, as was done in the United States Pharmacopœia, or they failed to experiment properly before writing down the requirements.

Prof. Fresenius states that the test may be used, employing the strong acid if the time of digestion on the water-bath be reduced from one day (=12 hours) to thirty to forty minutes. Good oils remain colorless themselves, but impart to the acid a light-brownish or brownish tint; impure oils turn yellowish-brown, and color the acid brownish-black.

According to Prof. Fresenius, the same fault must be found with the test for "solid paraffin," as he has not yet found a sample of the latter which would stand the test with sulphuric acid.—*Pharmac. Centralh.*, 1882, No. 15.

Estimation of Neutral Fat in Mixtures of Fatty Acids.

HAUSSMANN some time ago described a method of determining undecomposed fat in mixtures of fatty acids, which M. Gröger afterwards reported to give unsatisfactory results. On investigation, however, it was discovered that the failure was due to the defective description given by Haussmann and that the method was very valuable. M. Gröger recommends the following mode of proceeding :†—three to five grams of the previously dried mixture of fatty acids to be examined for neutral fat are placed in a flask of 150 *cc.* capacity, and dissolved completely in 25–30 *cc.* of hot alcohol of about ninety-six per cent Tr. After the addition of one to two drops of alcoholic solution of phenolphthalein, the free fatty acid is determined by titrating the mixture with alcoholic potash-lye (decinormal) until the red coloration ceases to disappear immediately after shaking. To determine approximately the equivalent weight of the fatty acids, a measured (excessive) quantity of alcoholic potash-lye is added, and the flask corked up.

Through the cork a condensing tube 80 *cm.* long is passed, the mixture is then boiled for thirty minutes (if the red disappears, more potash-lye is added) and titrated back with a decinormal solution of oxalic acid until the red disappears. The precipitate of potassium oxalate produced is disregarded. This method gives accurate results only in cases where the neutral fat to be determined is the same as that from which the admixed fatty acids were separated, and provided that the saponification has extended uniformly to all the constituents of the fat. The author has therefore tried to modify this method, which the view of determining accurately the addition of a neutral fat to all fatty acids, *e. g.*, the quantity of tallow added to stearine candles, or of cocoa-nut oil present in composite candles, etc. He proceeds in the following manner; four to eight grams of the fatty acids to be examined for neutral fat are dissolved in 50 *cc.* of hot alcohol of about ninety-six per cent, a few drops of phenolphthalein are added, and the mixture is treated with decinormal alcoholic potash solution, until the red color ceases to disappear. The whole is diluted with 150 *cc.* water. Thus an alcohol of twenty to twenty-five per cent Tr. is obtained, in which the potash soap remains completely dissolved, but the neutral fats are insoluble. After cooling, 60–100 *cc.* of ether are added; the flask is then shaken vigorously, and allowed to remain quiescent until the soap solution under the ethereal layer is perfectly clear. The solution is then drawn up with a pipette, diluted with water and heated to drive off all ether and alcohol. The fatty acids are liberated by adding dilute sulphuric or hydrochloric acid, washed with hot water until free from acid, and cooled. The equivalent weight of the carefully dried acids is determined by titration with decinormal alcoholic potash-lye. The number of *cc.* of alkali required to neutralize the free fatty acid in the mixture containing the neutral fat multiplied by the thousandth part of the equivalent weight found gives the weight of the fatty acids contained therein, and hence the quantity of neutral fat added. The ethereal solution of the neutral fat may be used for testing the fat qualitatively.

Synthesis of Salicin.

BY the action of sodium amalgam upon helicin—the oxidation-product of salicin—Lisenko succeeded in reproducing salicin. Michael has tried the same process with artificial helicin, and has likewise succeeded in producing salicin.—*Berichte*, 1882, 1922.

Artificial helicin is prepared (according to Michael, *Am. Chem. Journ.*, 1, 309) by mixing an alcoholic solution of acetochlorhydrose with salicylate of potassium.

The Synthesis of Uric Acid.

THE first organic body ever produced artificially was *urea*, and one of the latest that has been formed synthetically is uric acid, also a constituent of the urine, but of much more complex construction. The first was accomplished by the late Prof. Wöhler, the last by John Horbaczewski, in the laboratory of Prof. Ludwig in Vienna. The operation is thus described by him, in the *Berichte der Deutschen Chemischen Gesellschaft:* Pure and finely pulverized glycocol, obtained from hippuric acid, was mixed with ten times its weight of pure urea made from cyanate of ammonia. The mixture was heated rapidly in a flask on a metal box to 200° or 230° C. (392° to 446° Fahr.). The heating was continued until the fusion, which was at first perfectly colorless, became turbid and thick, and of a yellowish-brown color. When cold, the fused mass was dissolved in dilute caustic potash, the solution was supersaturated with chloride of ammonium, and then precipitated by an ammoniacal silver solution, mixed with magnesia mixture. The precipitate, which contains the uric acid, was well washed with ammonia water, and then decomposed with potassium sulphide. After filtering out the precipitate, the filtrate was saturated with hydrochloric acid, and concentrated by evaporation. The crude product that separated on cooling was again dissolved in dilute potash, and the same process twice repeated. The final product was a yellowish-colored crystalline powder, which was washed with alcohol first, then dried, and the sulphur removed with carbon disulphide, and finally washed with ether. The product purified in this way showed all the properties and reactions of uric acid.

1. Under the microscope, the crystals exhibited the forms and characteristic of uric acid, either plates or whetstone-

* A translation of the text of the articles *Paraffinum Liquidum* and *Paraffinum Solidum* of the German Pharmacopœia will be found in our volume for 1882, p. 198.

† *Dingler's Polyt. Journ.*, 244, 303.

shaped crystals, according to the purity of the preparation.

2. They reduced alkaline copper solution when heated, and the silver solution without heating.

3. They dissolved in concentrated nitric acid with the evolution of brown vapors, and the onion-red residue left by evaporation (murexide test) turned purple with ammonia, violet with potash.

4. They were very slightly soluble in water, acids, alcohol, and ether; but easily soluble in caustic alkalies.

An elementary analysis gave the following result:

	Calculated.	Found.
Carbon	35.72	35.68
Hydrogen	2.38	4.02
Nitrogen	33.33	33.49

The author reserves the privilege of studying more fully the reactions which he communicates.

Quinidine Sulphate Contaminated with Homoquinidine.

In the course of a paper on "Homoconchinin and Conchinin,"* Mr. Otto Hesse gives the results of some of his recent studies on the cinchona alkoloid "homoquinidine" some time ago discovered by himself, and also by Forst and Boehringer.

Neutral homoquinidine sulphate crystallizes in fine *needles*, if its solution is evaporated at 30°–50° C., or when it separates from a highly concentrated solution; or in coarse *crystals*, if its solution saturated at about 20° C., is allowed to evaporate slowly at a low temperature (about 10° C.), or when the salt separates from a hot aqueous solution of the strength of 1 in 20.

If the salt crystallizes from solutions containing sulphate of ammonium, it is almost always obtained in needles. If the mother-liquor be removed and the needles washed with pure water, they will be seen to change, at a low temperature, into a powder or into granular crystals. But, if the latter be covered with hot water, they are reconverted into fine needles.

These varieties of crystallization are due to a difference in water of hydration. The needle-shaped salt, namely, has the composition:

$(C_{20}H_{24}N_2O_2)_2H_2SO_4 + 2H_2O$; while the granular or coarsely-crystalline salt contains $8H_2O$.

The former salt is soluble, at 16° C., in 92.3 parts, and the latter in 81.1 parts of water. Sulphate of hydroquinidine is, therefore, at a low temperature somewhat more soluble in water than quinidine sulphate. It might be supposed, hence, that it should be present in the mother-liquor left after the crystallization of sulphate of quinidine in larger quantity than in the last-named salt itself. This is, however, but seldom the case.

Since neutral sulphate of homoquinidine, no matter in what crystalline form, loses its water completely at ordinary temperature in the exsiccator, while sulphate of quinidine does not lose its water up to 80° C., Mr. Hesse hoped to be able to prove the presence of the former salt in the latter directly. It turned out, however, that hydroquinidine when present in commercial sulphate of quinidine *does not betray its presence, but may be said to be "latent" therein*, just as cinchonidine is latent in commercial sulphate of quinine. Other attempts to separate the alkaloids or to determine one in presence of the other having failed in Mr. Hesse's hands, he finally had recourse to the action of permanganate of potassium, which decomposes the quinidine, but also attacks some of the hydroquinidine unless the greatest caution in observed. On the basis of these experiments, Mr. Hesse states that German sulphate of quinidine, of different sources, contains up to 11 per cent (mostly about 5 per cent) of sulphate of homoquinidine, while the English salt (Howard's sulphate of quinidine of 1877) contained 19 per cent. A high percentage of sulphate of hydroquinidine is betrayed by the imperfect crystallization of the sulphate of quinidine. If the percentage rises to 30, the mixture forms short needles, and at 40 per cent, but short needles and rhombic plates may be observed.

Hesse has termed the above described alkaloid "hydroconchinin" [= hydroquinidine] because it is, without doubt, a hydride of "conchinin" [= quinidine].

Quinidine may be obtained, with tolerable ease, free from homoquinidine, if the *neutral* hydrochlorate or the *acid* sulphate be repeatedly crystallized from water or alcohol. Sometimes a single crystallization is sufficient. But the attempt of purification is unsuccessful, if the *neutral* sulphate of quinidine is recrystallized from water, or the free alkaloid from hot alcohol or benzin.*

Hesse has also endeavored to detect hydroquinidine in the Remijia barks (Cuprea barks, see the last number of New Rem., p. 35), from which quinine, and its constant companion, quinidine, are now principally obtained. Under avoidance of any reaction which might convert quinidine into its hydride, homoquinidine, Hesse really succeeded—though not without the employment of permanganate of potassium—in obtaining homoquinidine from the above-named barks. Yet its quantity was so small, while the proportion of the base in the finished commercial sulphate is so large, that Hesse believes to be justified in supposing that the larger proportion, or perhaps the total amount of *hydroquinidine*, instead of pre-existing in the bark, is produced during the extraction or manufacture of quinidine from the bark. The same appears to be the case with the other hydrobases, the hydroquinine, hydrocinchonidine and hydrocinchonine.—*Berlin. Berichte*, 1882, p. 3008.

Laboratory Notes.

I. *Precipitation of Barium Sulphate.*

I have frequently observed that solutions of barium chloride seem to dissolve more air or carbon dioxide than most other solutions used as reagents, so much so that the addition of a cold barium solution to a boiling solution causes a brisk evolution of gas comparable with the effervescence due to the addition of acid to a carbonate. When a sulphate is present in the solution to which cold barium chloride solution has been added, even though the sulphate solution may have been boiling, the precipitate separates in a very finely divided condition, which gives much trouble in filtering, as the precipitate is so fine as to pass through the pores of a filter, and takes very long to settle.

If the barium solution is boiled for a few minutes before adding it, this phenomenon does not occur. The conclusion seems to be that the gases dissolved by the barium solution play an important part in the matter of the separation of the precipitate. Other chemists have evidently experienced the same trouble, for I have found recommendations in the literature to add a pinch of starch to the solution, and also more recently the addition of a little silver nitrate, the AgCl being subsequently dissolved out by ammonia, both having the same object in view—to cause the barium sulphate to separate promptly in a form suitable for filtration and washing.

However, by boiling *both* barium and sulphate solutions for a few minutes *separately* and mixing them when boiling hot, then boiling the mixture for a few minutes, and finally allowing it to stand on the water-bath, the precipitate will settle completely in about half an hour.

II. *Peculiar Reaction with Lead Acetate.*

Many of the members of the society will remember a conversazione of the society which was held at the laboratory of our late fellow-member, Dr. Lipps. Among other

* These terms we have replaced by the more familiar ones "homoquinidine" and "quinidine." Hesse retains the term *conchinin* for "quinidine," although the latter has now been generally accepted both by manufacturers and by chemical authors.

* Hesse remarks, *en passant*, that *quinidine* when crystallized from benzin, generally forms *anhydrous* needles, which are, of course, permanent in the air. But from alcohol it separates *always* in shining prisms, containing $2\frac{1}{2}H_2O$, and rapidly losing $\frac{1}{2}H_2O$, whereby they become white and opaque. Hesse doubts the existence of a quinidine which, according to Flückiger, contains only $2H_2O$, and has, at the same time, the property of being efflorescent.

interesting things shown us was the preparation of Dr. Lipps' "dextrin reagent," where litharge was added to solution of lead acetate, and the mixture heated to about 55° C., when it thickened up, owing, no doubt, to the formation of some of the extremely basic lead compounds. The reaction is such a peculiar one that I have thought it worthy to be placed on record, which Dr. Lipps failed to do during his life-time.

To obtain the reaction, take a cold saturated solution of lead acetate, warm to 50 or 60° C., and add litharge little by little, stirring it in vigorously. At a certain point the mixture suddenly thickens, and in a few minutes becomes so solid that the vessel may be inverted without spilling. After standing for a short time the mass may be extracted with water, and the solution constitutes the "dextrin reagent." This reagent, when boiled with solutions containing dextrin, gives a white precipitate. According to Dr. Lipps, 100 parts of this precipitate, when thoroughly dried, correspond to 35 parts of dextrin.

The compound formed is probably the sexbasic lead acetate described by Berzelius (*Ann. Chim.*, xciv. 296), containing

Acetic acid	5.7 per cent
Oxide of lead	91.3 " "
Water	3.0 " "

In Berzelius' description of the preparation of this acetate, ammonia was used to withdraw a portion of the acid from its combination with the lead. In Allen's Commercial Handbook, p. 318, the use of lead acetate to which ammonia has been added is mentioned as a reagent for dextrin. The compound formed is probably the same.—E. WALLER in *Journ. Am. Chem. Soc.*, 1882, 212.

Analyses of Foods.

IN a long and interesting article in the *Pharmaceutische Centralhalle* on the nourishing powers of various natural and artificial foods for infants and invalids, Dr. Stutzer, of Bonn, gives the following results as far as concerns their nitrogenous constituents:

FLESH FORMERS. Per cent.		FLESH FORMERS. Per cent.	
Caviar	25.81	Condensed milk	8.79
Revalenta	19.93	White bread	7.20
Smoked ham	18.92	Biscuit	6.71
Fresh beef	18.53	Oysters	5.78
Fowl (breast)	16.56	Cow's milk	4.00
White of egg	13.48	Extractum carnis	3.40
Yolk	13.01	Malt extract	0.28
Infant's food	9.90		

The above table gives rise to some curious reflections. The wonderful nourishing power attributed to oysters are found to dwindle into insignificance when compared with other food; for instance, a single hen's egg contains as much nourishment, that is to say, as much flesh-forming material, as fourteen oysters, while one-quarter pound of lean rumpsteak is equal to about five dozen of these delicious, but delusive, molluscs.

With regard to condensed milk, it contains much less flesh forming material than is generally supposed Taking four per cent for cow's milk as a fair average, the directions on the can, if followed out, give unexpected results. For children's use, we are told to dilute the condensed milk with four or five parts of water. Taking the lowest figure, we should then have five parts of diluted condensed milk which, according to Dr. Stutzer's figures, would only contain 1.76 per cent of flesh formers, instead of four per cent, while the milk sugar would be increased from 4.5 to 10.85 per cent. We know that woman's milk contains more sugar than cow's, but still not in the above surprising proportions. Now that so much canned milk is used for infants brought up by hand, it becomes a question how far mothers who cannot suckle their children are responsible for the health and even lives of their children by giving them milk from the tin cow instead of that of the living animal.

Dr. Stutzer further exposes the often exposed superstition about the nourishing powers of beef tea. He extracted all the extractible matter from one hundred grams of beef with one hundred grams of water, and a good proportion of salt, at a gentle heat for four hours, but could only succeed in obtaining in solution one-twelfth of the nourishing matter of the beef, the remaining eleven-twelfths remaining behind in the *bouilli*. In other words, we should have to take half a gallon of beef tea made with a pound of beef to each pint of water before we got as much nourishment as is contained in a quarter of a pound of steak. We might, it is true, evaporate our beef tea down to, say half a pint, but we doubt if it would be palatable to the least squeamish invalid. The high value of eggs, too, is well shown; in fact, roughly speaking, a couple of eggs weighing three and a half ounces are about equal to two ounces of good rump steak.

Dr. Stutzer, in the course of this article, mentions three samples of cocoa warranted free from fat (*entölter Cacao*) from different houses, which contained respectively 33.48, 32.31, and 30.95 per cent. of fatty matter of some sort.

The highly nourishing powers of caviar will no doubt strike the "general" with amazement.

With the law of libel in its present condition, we have been obliged to omit names, but Dr. Stutzer either has not the fear of the law before his eyes, or they "order these things"—legally, at least—"better in Germany."—*The Chemist's Journal.*

Determination of Salicylic Acid in Milk an Butter.

A. RÉMONT agitates 20 *cc.* of the milk with 2 or 3 drops of sulphuric acid in a test-tube. The agitation should be strong enough to break up the clot and form a homogeneous mixture; 20 *cc.* of ether are poured in, gradually at first, and the whole is shaken up until the ether is emulsified only in part. After standing, 10 *cc.* of the ethereal solution are decanted into an ordinary test-tube having a mark corresponding to a volume of 10 *cc.* The ether evaporates, leaving a residue of butter, which is boiled with 10 *cc.* of alcohol at 40%, and is then allowed to cool. We have thus 10 *cc.* of solution containing all the salicylic acid of an equal volume of milk. It is poured upon a filter, and 5 *cc.* are received in a graduated tube of 15 *mm.* in diameter; 2 or 3 drops of ferric chloride (diluted with 100 parts of water) are added, and the intensity of the violet color obtained is compared with that of an analogous liquid prepared from pure milk to which known proportions of sodium salicylate have been added. Butter is examined in a corresponding manner.—*Bull. de la. Soc. chim. de Paris* and *Chem. News.*

Solution of Bromide of Arsenic.

THIS is intended as a substitute for Fowler's solution, and was first proposed by Dr. Clemens, of Frankfurt am Main. It consists of

Arsenious acid	1 part.
Carbonate of potash	1 "
Bromine	2 parts.
Distilled water, to make	93 "

Boil the carbonate and the acid with most of the water, until dissolved; when cold, add the bromine and water enough to make the prescribed quantity. It is said to improve by age, owing to the combination of the bromine. The dose is one to four drops in water, once or twice daily.

Iodoform in Purulent Ophthalmia.

DR. DUJARDIN has employed, with success, the application of powdered iodoform in a bad case of ophthalmia in an eight-months' infant. The powder was dusted on the inner surface of the lids, and rapidly decreased the inflammation and purulent discharge.—*The Practitioner* from the *Ophthalmic Rev.*

General Rules to be observed in Prescriptions for the Poor and in Hospitals [in Bavaria].

[From the fourth edition of Dr. H. v. Ziemssen's Pharmacopœia Clinica, which little work we can recommend as a very useful and practical guide for correctly prescibing the remedies contained in the German Pharmacopœia. We extract a prefatory chapter, giving general rules to be observed by physicians who prescribe for the poor and in public hospitals.

It should be observed that these rules are laid down for medicines to be sold at a reduced rate, or to be paid for by the state, or by municipal authorities, and most of them are based upon considerations of economy.]

1. In general, not more than *one* prescription should be written for one patient at one and the same time. Only in *urgent* cases is it permitted to order several remedies at one time. No attention should be paid to the desire of the patient for a more frequent change or increased amount of the medicine.

2. The cheapest forms of prescription are those which last for some time (1 or 2 weeks), such as drops, tea-herbs; powders, etc., which the patient is directed to subdivide himself.

3. Mixtures, Infusions, Decoctions and Emulsions are to be avoided as much as possible.

4. Pills, Drops, Species [= mixed and cut herbs] and Powders, are to be recommended, as forms of administration in chronic, especially in incurable diseases.

5. Drops may be prescribed usually in quantities of 3 to 4 fl. drachms; Mixtures 5 fl. oz.; Linctus 1½ to 3½ fl. oz.; Oils for eternal use 5 to 8 fl. drachm, for internal use 1 to 1½ fl. oz.; for injections 3 to 5 fl. oz.; Electuaries ¾ to 1½ fl. oz; Pills 25 to 100; Powders 5 to 10; Ointments ½ to 1 oz.; Flowers and Leaves, for tea, 2 to 5 drachms; Roots and Species, for tea, 1½ to 3½ oz.

6. If a prescription is to be repeated, this is to be indicated upon the label as follows:

"Reiteretur sine vitro (olla, etc.) mixtura (pulvis, etc.)
d.d.....18..... ...Dr. N. N."

7. If the vessel in which the medicine has been first dispensed is returned to the drug-store, the same will be charged at half-price when the medicine is repeated. Patients and their friends are, therefore, to be instructed to return the vessels clean, together with the prescription.

8. Half-white [green] vials are the cheapest, and therefore to be exclusively used.

9. Black vials are excluded on account of their high price. In the case of medicines which are liable to spoil under the influence of light, such as solutions of nitrate of silver, etc., the patients are to be advised to keep the vial in a dark closet.

10. Pasteboard boxes are expensive. In their place, earthen pots are to be employed for pills, and small paper-bags for powders and other dry substances.

11. Powders are to be prescribed, as a rule, of double strength, so that the patient may himself divide it in two parts, each of which is to constitute one dose. The charge of subdividing is, thereby, diminished one-half.

12. For all solutions of easily decomposable substances, distilled water is to be used. In all other cases, common drinking water.

13. Aqua Plumbi, Lead-water [= Liquor Plumbi Subacetatis Dilutus] is to be replaced by ⅓ oz. of Acetum Plumbi [Liquor Plumbi Subacetatis], which is to be mixed, in the patient's residence, with water, in the proportion of 1 teaspoonful to 2 teacupsful of water.

14. The ingredients for poultices are to be ordered from the drug-store only in cases of necessity, and if so, only Flaxseed Meal is to be ordered.

15. Of Syrups, only Simple Syrup, Syrup of Althæa and Syrup of Raspberries are permitted, and these only as vehicles of nauseous medicines, and not exceeding 10 parts in 150 parts.

Medicines of indifferent taste or easily decomposed, such as iodide and bromide of potassium, nitrate of silver, tartar emetic, permanganate of potassium, etc., are to be merely dissolved in water, without the addition of syrup. Emulsions are likewise to be prepared without syrup.

16. Extract of Licorice is, in general, only to be prescribed with saline solutions, as chloride of ammonium, nitrate of potassium, in quantities not exceeding 5 parts in 150 parts.

17. Sulphate of Quinine is also to be prescribed without syrup, since sugar only makes its bitterness more repulsive. It is best dissolved in equal parts of distilled water and of Cinnamon water.

18. In general, all *expensive* medicines are forbidden to be used in prescribing for the Sick Poor or the Sick in Hospitals. Their employment is permitted only in special, exceptional cases.

Accordingly the following remedies are excluded from such prescriptions.

All natural and artificial mineral waters.

All wines, with the exception of small doses of Sherry or Tokay for suckling infants (not over ½ fl. oz. at a time).

All Elæosacchara (Oil-Sugars).

All distilled aromatic waters, excepting Cinnamon water for quinine.

Besides, the following:

Benzoic Acid. Aconitin. "Aqua fœtida antihysterica." Atropine. Chloride of Gold and Sodium. Leaf-gold. Balsam of Peru. Copaiba Capsules. Castor. Caffeine. Cinchona Bark and its preparations. Digitalin. "Emplastrum Galbani crocatum" and "—oxycrocatum." Ergotin. Extract of Meat. Extract of Cubebs. Extract of Male Fern. Extract of Opium. Saccharated Carbonate of Iron. Lactate of Iron. Compound infusion of Senna. Pure Carbonate of Potassium. Bromide of Potassium. Carbonate of Lithium. Musk. Oil of Almonds. Tannate of Lead (magma). Effervescing Powder. Rhubarb and its preparations (excepting the Aqueous Tincture of Rhubarb). Jalap-Soap. White Potash Soap. "Serum Lactis Aluminatum" and "—Tamarindinatum." Aromatic Species. Pectoral Species. Veratrine. Valerianate of Zinc.

Cheapened Aluminium.

THE improved process of producing the metal aluminum, recently reported from England, does not cheapen the product anywhere near enough to bring the metal into serious competition with iron. The inventor, Mr. James Webster, of Hollywood, near Birmingham, Engl, claims, however, to have found a way to solder and weld the metal. If this claim is true, and the methods are practicable, the improvement is likely to greatly extend the usefulness of the "coming" metal.

Mr. Webster's process of reducing the metal is described as follows:

A given quantity of alum and pitch, which are first finely ground, are mixed together and placed in a calcining furnace, by which means 38 per cent of water is driven out, leaving the sulphur, potash, and alumina with oxide of iron. The calcined mixture is then put into vertical retorts, and steam and air are forced through, which leaves a residue of potash and alumina only. This residue is afterwards placed in a vat filled with warm water, which is heated with steam. The potash is thus leached out, and the alumina left as a deposit. The potash liquor is then run off, boiled down, while the alumina precipitate is collected in sacks and dried. It is then ready for making chloride of aluminum. The alumina deposit thus obtained contains about 84 per cent of pure alumina, while that which is obtained by the old process of precipitation has only 65 per cent. Mr. Jones, the Wolverhampton borough analyst, certifies that the constituents of Mr. Webster's alumina deposit are as follows: Alumina, 84.10; sulphate of zinc, 2.68; silica, 7.40; water, 4.20; alkaline salts, 1.62. In order to complete the process and convert it into aluminum, the chloride of aluminum is treated with sodium, in order to withdraw the metal. Aluminum is afterward alloyed with copper, silver, and other metals. It is used for the manufacture of bismuth bronze, aluminum bronze, or any other alloys.—*Scient. Ameri an.*

The Frequent Repetition of Doses.

In a lecture on this topic, lately delivered by Prof. A. A. Smith, in the Bellevue Hospital Medical College, of New York, the speaker mentioned a variety of facts, of general interest, respecting the action of drugs when thus administered.*

The following are, in brief, some of the suggestions offered:

Chlorate of Potassium.—Grain doses, given every half-hour, in scarlet fever, diphtheria, tonsillitis, etc., will produce the same results as larger doses, without the danger of the evil effects resulting from the accumulation of the drug in the system, as sometimes happens when it is administered in the ordinary way. Indeed he believes that they will produce better results upon the throat inflammations.

Croton Chloral, when used to relieve neuralgia, is more efficacious when a grain is administered every half-hour until the symptoms abate, than when, as is usually the case, five to eight grains are repeated every two hours until fifteen grains are taken. Another advantage of the former plan is that it avoids the irritation of the stomach so apt to be caused when the larger doses are used.

Salicylate of Sodium.—Two grains given every half-hour or hour, will often quickly relieve obstinate cases of urticaria not chronic in character.

Balsam of Copaiva given in drop-doses every half-hour, is another excellent remedy for urticaria, although not so often successful as the salicylate of sodium.

Solution of Arsenite of Potassium (Fowler's Solution).—Half-a-drop given every half-hour for six or eight doses, will often relieve the vomiting caused by a debauch as well as the morning vomiting of drunkards, and the sympathetic nausea and vomiting of pregnant women.

Jaborandi given in five-to-ten-minim doses of the fluid extract, will produce diaphoresis without depressing the heart's action; an effect which has so often followed the use of larger doses as to cause many physicians to refrain from their use, especially in the puerperal state.

Sulphate of Atropine.—One-hundredth of a grain, dissolved in a glassful of water and given in teaspoonful doses every half-hour or hour, is a valuable remedy in spasmodic croup. An emetic or purgative should precede it when the condition of the stomach or bowels demands.

Bromide of Sodium.—A few grains, dissolved in a tumblerful of water so that each teaspoonful may represent a half-grain, will quickly quiet the nervous disturbance of teething infants, or fever not dependant upon the onset of an inflammation or other grave trouble, but rather such as may follow excitement of any kind. The dose should be repeated every ten or fifteen minutes.

Chamomilla.—A minim of the tincture given every fifteen or twenty minutes is a better sedative than chloral hydrate for sleepless children or those who are easily disturbed by noise or other causes. A simple way for administering it is to put a teaspoonful of the tincture in a glass half-full of water, and let the child drink it at its pleasure.

Ipecac.—A drop of the wine of ipecac, repeated every ten or fifteen minutes, will often relieve obstinate vomiting from different causes, and will sometimes also check diarrhœa. Given in this way in water it does not nauseate.

Calomel, according to Trousseau, given in the sixtieth of a grain, every hour, for ten or twelve hours, will stop nocturnal headache due to syphilis. Professor Smith has verified this statement with the use of one-fortieth of a grain. Children who regurgitate food after nursing, may be relieved by giving every ten or fifteen minutes a teaspoonful of a grain of calomel in a pint of water. In order to dissolve it, the calomel should first be put into an ounce of lime water, and this be afterwards added to the pint of pure water.

Mercury with Chalk.—One twenty-fourth of a grain, given at intervals of fifteen to twenty minutes, is often of great benefit in the vomiting and non-inflammatory diarrhœa of children.

Corrosive Sublimate.—One grain in a quart of water. Of this a teaspoonful every hour will be of benefit in diarrhœa with passages containing mucous and indicative of inflammation.

Tartar Emetic.—Put one grain into one quart of water. Give of this teaspoonful doses every half-hour, and it will relieve the wheezing and cough accompanying a slight bronchitis in children. [We have repeatedly verified this statement.—Ed. N. R.]

Nux Vomica.—A drop of the tincture, given every ten minutes, will often produce most marked relief in sick-headache not of neurotic origin. It should be given immediately or soon after meals.

Cantharides.—A single drop of the tincture, given every hour, will in many cases relieve vesical catarrh.

Digitalis.—A single drop of the tincture, given to a patient suffering from symptoms due to heart disease where digitalis is indicated, administered at intervals of an hour, or half-hour, according to the severity of the symptoms, will often give greater relief than larger doses, and without liability to ill effects.

Castor Oil.—For the diarrhœa of children, accompanied with slight inflammation, straining, and the passage of jelly-looking matter, but not true dysentery, five drops of castor oil, given every hour with sugar and gum, is an excellent remedy. [This is essentially the active element of "West's Mixture," recommended in nearly all works on diseases of children, and now used for many years for this malady.—Ed. N. R.]

Pulsatilla.—Two-minim doses of the tincture, repeated every hour, are said by an authority in venereal diseases to have given greater and more rapid relief, in cases of orchitis and epididymitis, than any other mode of treatment. Professor Smith also vouches for its efficacy when administered in this manner, in dysmenorrhœa not of a membranous, obstructive, or neuralgic character.

Calabar Bean.—One-fiftieth of a grain of the extract, repeated every half-hour, for six or eight doses, is an effectual remedy for the flatulence, and a sensation of palpitation or fluttering at the pit of the stomach, suffered by many women at the menopause. After the number of doses above mentioned have been taken, three hours should intervene before recommencing its use.

Ergot.—Minim doses given every half-hour, for six hours on the day before the menstrual flow should recur, and again on the day when it is due, will be beneficial in amenorrhœa not dependent on anæmia. Quite remarkable, although contradictory to the above, is the efficacy of the same plan of treatment when used to control excessive menstruation.

Aconite.—One-third to one-half minim, given every fifteen minutes, will lessen fever (when it is not the commencement of one of the continued fevers), when the skin is hot and dry, the pulse full and bounding, and the mucous membrane of the throat and nose dry. When so used, it will also arrest a "cold in the head," and is useful in cardiac hypertrophy with palpitation, severe headache, and disturbances of the nervous system, due to increased force of the heart-beat.

Hamamelis.—Two minims, given every half-hour, will often control hemorrhage. In spite of previous doubts, Professor Smith has been convinced of its beneficial effect in hemorrhage from the nose, uterus, and from hemorrhoids.

Belladonna.—Minim-doses, given every half-hour, is a good remedy in cases of nasal catarrh and bronchitis, accompanied with free secretion. Owing to its tendency to cumulative effects, it should be suspended for a time after eight or ten doses have been so given. Thus administered, it retards the exudation of serum, and sustains the heart's action in pulmonary œdema.

Chloride of Ammonium.—Two grains, combined with ten or fifteen minims of the tincture of cubebs, given every half-hour, oftentimes controls acute pharyngitis, and superficial inflammations of other tissues about the throat. When the pharyngitis depends upon a gouty diathesis, add to the above mixture ten minims of the ammoniated tincture of guaiacum, and administer every hour.

* *N. Y. Med. Jour.*, Feb. 10th, 1883.

Citrate of Caffeine.—One grain, every half-hour, often produces most marked relief in migraine.

Gelsemium.—Three-minim doses of the tincture, every half-hour, will often relieve miraculously neuralgias about the face or head, and leave no ill effects.

Guarana.—Fifteen-minim doses of the fluid extract, given every fifteen minutes, frequently relieve headaches, especially when they are periodical and not of malarial origin.

Nitrite of Amyl in Spasm of the Glottis.

DR. JOSEPH WILLIAMS, of Boston, caused almost immediate arrest of stridulous respiration in an infant suffering from glottic spasm by administering, slowly, ten minims of amyl nitrite.—*Canad. Med. and Surg. Journ.*

To Disguise the Odor of Iodoform.

POWDERED iodoform, ℥ ss.; oil of eucalyptus, ʒ ss.; vaseline, ℥ iv. Mix. While this ointment has an odor, it is said not to resemble that of iodoform.

Linseed Poultices: How to Make and How to Apply Them.

F. P. ATKINSON, M.D., says that the meal deprived of its oil is far better than that from which the oil has not been extracted. The latter does not retain its heat as long, and, unless covered by some fabric, is not so easily removed as the poultice made from the former. The exhausted meal takes up more water and retains its heat longer. In making a poultice, the meal should be thoroughly stirred with a spoon, while boiling water is gradually added, and when of proper (rather soft) consistence, should be spread on linen. The ability to bear the heat on the back of the hand is a good test of the degree to be used. The poultice should be applied *directly* to the skin, without intervening fabric, and covered on the outside with good oiled-silk. A teaspoonful of laudanum may be sprinkled on the surface to increase its anodyne effects, or in place of water may be used a boiling infusion of chamomile or poppy-heads. When the skin is inflamed, three grains of sulphate of zinc or of alum may be added to each ounce of the water. A solution of one to forty of carbolic acid may be used instead of simple water in the case of sloughing wounds. Once in four hours is a good rule to follow in changing poultices on the chest, the front and back being covered by separate poultices, and only one should be removed at a time. A fresh one should be ready when the change is made. Frequent changes are most grateful in cases of abdominal pain.

Infusion of Chamomile as a Remedy or Infantile Diarrhœa.

CHRISTOPHER ELIOT, M.D., writes, in *The Practitioner* of December, 1882, that he now seldom employs any other remedy than infusion of chamomile (*Anthemis nobilis*) in infantile diarrhœa. It is especially useful for the diarrhœa occurring during dentition, when the stools are many in number, green or slimy, and streaked with blood. Pain or cramp especially indicate its use, and a few doses will quickly calm a fretful child. ℥ ss. to ℥ i. of the infusion may be given to a child under one year of age, or double that quantity to a child over that age, and it may be repeated thrice or oftener daily according to the severity of the case.

Effects of Iron on Digestion.

SOME experiments lately made by Dr. A. Düsterhoff and published in his inaugural dissertation, in Berlin, appear to show that the organic salts of iron seriously hinder and check peptic digestion. Probably the hydrochloric acid of the gastric juice displaces the organic acid from the iron salts, and so is used up; while the free organic acids in the digestive fluids are far less powerful digestive agents than the hydrochloric acid. But this cannot be the only cause at work, for the perchloride and the phosphate also tend to hinder digestion. Even reduced iron has a similar effect, for it is partially dissolved in the juices, forming chlorides. Its solubility, like that of the phosphate, is, however, not very great. Ferrous salts seem to interfere less with digestion than ferric salts.—*Centralb. f. Med. Wissen.*, Nov. 11th.

Remedies for Headache.

Citrate of Caffeine, or Caffeine.—Two grains, every half-hour, in capsules if preferred, or triturated with milk sugar. It may cause sleeplessness, with some people, if taken in the evening, but is preferable to guarana, as less liable to disturb the stomach.

Chloride of ammonium, 3 drachms; acetate of morphia, 1 grain; citrate of caffeine, 30 grains; aromatic spirit of ammonia, 1 drachm; elixir of guarana, 4 ounces; rose water, 4 ounces. Mix. A dessert-spoonfull to be taken at intervals of ten to fifteen minutes. This is given on the authority of Dr. W. W. Carpenter, but is open to the objection of being polypharmacal,—a shot-gun prescription, so to speak.

Oxide of zinc, 2 to 5 grains, thrice daily after meals. Give in pillular form.

Nux vomica, ¼ grain of the extract, after meals. If the case is one of chlorosis, add 1 grain of reduced iron, and ½ grain of sulphate of quinine.

Subcarbonate of bismuth, 2 (?) grains (so W. H. Hammond says), after meals, when indigestion is a cause. The dose seems very small.

Bromides are serviceable when headache follows excitement, but is said to be likely to do harm rather than good when the nervous system is exhausted.

Phosphorus, in the form of dilute phosphoric acid, in dose of 30 drops, well diluted, thrice daily, and after eating, or in the form of *phosphide of zinc*, $\frac{1}{10}$ grain, thrice daily.

Arsenic, 5 drops of "Fowler's solution," or solution of arsenite of potassium, taken thrice daily, well diluted, and after eating. This will be found especially serviceable in the headache accompanying the menopause.

Epsom salt is said by Dr. T. Lauder Brunton to be serviceable, either in the form of a full dose, to secure brisk purgation, or small doses, taken twice daily, when frontal headache is associated with constipation. It may be noted, however, that saline purgatives are not as well borne, as a rule, by the people of this country as by those of Great Britain. The same authority recommends 10 drops of nitro-muriatic acid (dilute?), in a wineglassful of water, when the bowels are already acting normally.

Bicarbonate of sodium, 10 grains in water, before meals. This is most serviceable when frontal headache is high up, at the margins of the hairy scalp, the nitro-muriatic acid being preferable to it when the headache is located at the eyebrows.

Cannabis Indica, 10 minims taken, thrice daily, before the attack, is said to have proved remarkably curative of sick-headache in females when the disease seemed to be of hereditary character.

Iris versicolor, in minute doses, at short intervals, for sick headache accompanied with disturbances of vision like floating specks, or flashes of light, colored rays, etc.

Hot water, applied by means of a towel or flannel to the head. In the use of this remedy, it must be remembered that the water should be as hot as can well be borne.

Iodide of Potassium, 2 grains, dissolved in half a wineglassful of water, and sipped so that its consumption will consume about ten minutes, is said to be almost a specific in headache of a dull, heavy character, situated over the eyebrows, and accompanied by languor, chilliness, general discomfort, and distaste for food, approaching to nausea.

Oil of Peppermint.—The Chinese oil may be used by wetting a needle with it, and drawing the point slowly across the forehead; a sense of coolness along the track of the needle follows, and in many cases the headache quickly disappears.

Effects of Phosphorus on the Spinal Cord.

DR. DANILLO says that in cases of acute phosphorus poisoning, the central nervous system contains deposits of blood-pigment, that large doses of phosphorus cause central myelitis with extravasation of blood and deposits of pigment along the entire length of the cord, while smaller and repeated doses cause a diffuse myelitis of the gray and white matter. This, he thinks, may be made useful therapeutically in certain diseases of nutrition of the cord.—*Gaz. Méd. de Paris.*

Gelsemium Sempervirens as a Remedy in Tetanus.

DR. J. B. READ, of Tuscaloosa, Ala., reports, in the *British Medical Journal* of December 23d, a case of tetanus occurring in a mulatto woman twenty years old, caused by a fragment of broken glass imbedded in the heel. Following the use of gelsemium, in the form of fluid extract, given in increasing doses to forty minims, the spasms were arrested, and the patient recovered. No other remedy of any potency was used after the first six hours.

Sub-Nitrate of Bismuth as a Specific for Cancrum Oris.*

AFTER a disheartening succession of deaths from gangrene of the cheek among a number of children received into a New York public institution from another one condemned by the Health Board, Dr. C. J. Macguire resorted to the topical application of sub-nitrate of bismuth, every three hours, after cleansing with a disinfecting solution. It relieved or abolished the horrible fœtor of the disease, arrested the progress of the gangrene, and hastened cicatrization. The diagnosis of these cases was verified by competent specialists. Twenty-four cases in all were seen, and the four that proved fatal died before the treatment with bismuth was adopted. Following its employment, the cases all recovered. This is so remarkable a result, taking account of the fearful mortality in this disease, that Dr. Macguire is entitled to very great credit.

Effect of Inhalation of Ether on the Kidneys.

MR. LAWSON TAIT has lately observed in a case of fistula between the ureter and neck of the bladder, as well as in several cases of vesico-vaginal fistula, that during the administration of ether the discharge of urine from the ureters was suspended.

Convallaria Majalis.

PROFESSOR BEVERLY ROBINSON, of this city, having during the part three months used *Convallaria majalis* (lily of the valley) in a number of cases of chronic cardiac disease, reports that in cases having dyspnœa, oppression, localized pain, palpitation, doses of five to ten drops, every three hours, of the fluid extract, notably diminish these phenomena. The physical signs are also lessened in degree. Thus the pulse becomes stronger and more regular, the heart-sounds acquire additional force, and the painful palpitations disappear. dyspnœa is often favorably modified, and the respirations become slower and deeper. Anasarca is not much influenced by it, the urine scarcely, if at all, increased, nor its solid constituents manifestly modified. It is well borne by the stomach. Prof. R. believes that the drug exerts its influence through the pneumogastric nerve rather than upon the cardiac muscle. It does not restore rhythmic heart action to the same degree as digitalis, nor does he think it equals the latter in increasing cardiac contractility. Its *one* advantage over digitalis seems to be the absence of cumulative effects. It is greatly inferior to caffeine as a diuretic, though superior to it as a cardiac invigorator, and less variable in its action.—*N. Y. Med. Jour.*

* *The Medical Record*, Feb. 3d, 1883.

The Injudicious Use of Quinine.

PROF. D. B. ST. JOHN ROOSA, of New York, protests against the indiscriminate use of sulphate of quinine now so common among physicians and fashionable among the laity. Granting its power to reduce hyperpyrexia, he insists that this cannot always be done by such means without risk. In cases of commencing naso-pharyngeal catarrh, it not only fails in his experience to arrest the malady, but it usually aggravates the sufferings of the patient; while in diseases of the ear it becomes positively harmful by increasing the congestion that already exists. He has seen cases of subacute and acute disease of the ear which immediately began to recover as soon as the use of quinine was stopped.—*Med. Record.*

Abrus Precatorius in the Treatment of Pannus.

AT the recent meeting of the Medical Society of the State of New York, Dr. E. Gruening described the brilliant results following the use of the licorice-bean (or *Abrus precatorius*) for exciting inflammation to secure the removal of pannus, as suggested by De Wecker, of Paris. The formula for the infusion used is as follows: Thirty-six pulverized beans are to be placed in 500 grams of cold water for twenty-four hours. Then add 500 grams of hot water, and filter immediately after cooling. This is to be brushed thrice daily upon the surface [inner ?] of the lids, and causes, in a few days, a decided croupous or purulent inflam mation.—*Med. Record.*

Crayon-feu.

THIS name has been given by Dr. A. Moser, of Paris, to crayons which may be used as moxæ for cauterizing poisoned wounds, bites of rabid dogs, etc. It has a conical shape, and is composed of the following ingredients:

Charcoal	30 parts.
Nitrate of potassium	4 "
Iron, powdered	5 "
Benzoin	1 "
Excipient (acacia, etc.)	q. s. "

To be made into forty crayons.

To Clean Paint.

WHEN painted work is badly discolored, put a tablespoonful of ammonia water into a quart of moderately hot water, and with the aid of flannel, wipe off the surface. Rubbing is not necessary. When the discoloration is not great, the following method is preferable: With a piece of clean flannel wet with clean warm water, and then squeezed nearly dry, take up as much whiting, of the best quality, as will adhere, apply this with moderate rubbing to the painted work, and afterwards wash the surface with clean water, and rub it dry with chamois leather. This method is superior to the use of soap, requires but half the time and labor, and leaves the surface cleaned, looking as good as new. It will not injure delicate colors.

Gelatin Bougies.

LABLER recommends the following process: White gelatin, 2 parts, is dissolved in 8 parts of water and 1 part of glycerin, then heated in a water-bath until a drop of it, placed on a glass or marble slab, has the proper consistence after cooling. The medicinal ingredient is then dissolved in the mixture, either by itself or after trituration with a small amount of water, and the whole stirred and heated until the water has been evaporated when the mass is drawn by suction into glass tubes of the requisite diameter, and the tube, closed with the finger, is laid on a cold slab. To extract the bougie from the tube the following method is resorted to: Previous to using the tube, it is cut with a file near its middle and the portions again united by pasted paper. When the bougie has cooled, this paper is moistened and removed, and the two portions of the tube being separated, a drop or two of water may be dropped between the mass and the inside of the tube. This enables it to be withdrawn easily.—*Rundschau.*

NOTES, QUERIES AND ANSWERS.

Under this heading we shall, to the best of our ability, endeavor to answer such questions addressed to us, as come within the scope of this journal, provided they are accompanied by the name and address of the writer. Answers to queries received after the 5th of the month will lie over until the next issue. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for the formula of an unusual, patented, or proprietary compound, always accompany the query with any information you may already possess regarding the locality in which it is used, its use and reputed effects, in order to enable us to make inquiry without waste of time and labor. When it can conveniently be done, send also a specimen of the label used on packages of the compound.

No. 1049.—**Ligroine** (U. S.).

This name is given to one of the light fractions of crude petroleum. The separate collection of these fractions or rather the number of fractions thus collected depends, of course, on the demand for light oils of a definite density. While formerly some manufacturers turned out quite a number of different fractions, this number has of late been somewhat reduced. We notice, for instance, an announcement of the Chemical Factory at Eisenach, to the effect that the following fractions only will hereafter be furnished by their works:

No. 0. Petroleum ether (sp. gr. 0.640–0.650)
No. 1. " " (Pharm. Germ. 0.650–0.690)
No. 2. " " (Benzin Ph. G. 0.660–0.690)
No. 3. Benzin (for cleaning) 0.690–0.700
No. 4. Perfumed benzin
No. 5. Ligroine, 0.710–0.730
No. 6. Cleaning oil (substitute for oil of turpentine) 0.735–0.750.

No. 1050.—**Eucalyptus and its Commercial Products** (L. F.).

The commercial oil of eucalyptus is obtained almost exclusively from *Eucalyptus odorata* Labillardière. At least that which is manufactured by J. Bosisto, of Richmond, Melbourne, Australia, is obtained from this species.

The *eucalyptol* of commerce may be derived from any eucalyptus oil. We do not think that it will make any difference, what species it is obtained from. Bosisto states that his eucalyptol is prepared from the oil of eucalyptus globulus. It is now chiefly used for inhalation in bronchial affections and in phthisis; the usual quantity administered at one sitting being ½ to 1 fluidrachm with about 8 fluidounces of hot water in the inhaler.

Eucalyptol is a constituent of the essential oil of eucalyptus, forming the larger portion thereof, and is separated by fractional distillation. It is purified by rectification over caustic potash. It has an aromatic odor, resembling, in high dilution, that of roses, is readily soluble in alcohol; is dextrogyrate; boils at 175° C.; has the sp. gr. 0.905 at 8° C., and, when treated with anhydrous phosphoric acid, furnishes *eucalyptene*, a liquid, colorless hydrocarbon boiling at 165° C., besides other products.

Bosisto, of Melbourne, prepares a "eucalyptene" which is described as the "tonic or bitter principle in an amorphous condition; employed in low fevers in doses of one to three grains." We do not know what this substance may be; whether a natural educt from the eucalyptus, or a product of manufacture.

The same manufacturer also puts upon the market a *liquor Eucalypti globuli*, as "a fever and ague remedy." "Dose—for ague and dengue fever, 30 to 60 minims in half to wineglassful of mucilage and water, or glycerin and water, with the occasional addition of 2 minims of eucalyptol every two or three hours, during the paroxysms of ague. Incompatibles—the mineral acids."

No. 1051.—**Sulphate of Hyoscyamine** (O. S. W).

This alkaloidal salt appears in commerce in at least two different forms, namely, either in form of distinct, small, golden-yellow crystals, or in form of a yellowish-white or buff-colored, amorphous powder. There does not appear to be much difference in potency or therapentic effect between these two forms; in fact, a pretty considerable experience with both has satisfied us that the amorphous salt, as furnished by Merck, fulfils every expectation. The crystals are obtained with so much difficulty, that their price is about double that of the amorphous salt, which is a serious drawback to their general use. According to Prof. Ladenburg's investigations, crystals can only be obtained by first preparing the double chloride of gold and hyoscyamine in a crystalline state. From this compound, freed from the mother-liquor, the alkaloid is afterwards separated and crystallized. An explanation of the fact that the crude salt refuses to crystallize, is at present only possible by surmising that there is another body present which interferes with the crystallization. Still, whatever this substance may be, it does not seem to interfere with the physiological action of the alkaloid.

Sulphate of hyoscyamine is quite deliquescent. Hence if one of the small vials, in which it is generally put up, is opened in damp weather, it may happen that the substance left in the vial will deliquesce and thereby prevent an accurate weighing out of another portion. To avoid this trouble, we are in the habit of at once dissolving the whole of the contents of a vial (containing 5 grains, or 10 grains, or 1 gram of the salt) at once in a definite volume of a solvent, and keeping it, in small, well-closed vials for use. The solvent is usually a cold-saturated watery solution of salicylic acid 4 parts, and alcohol 1 part. The solution is made quite concentrated, say 1 in 10, and diluted with distilled water when wanted for use. This practice, is however, not to be recommended when there is only a limited demand for the solution, since it is not proved that the solution will remain unchanged forever. We are absolutely certain, however, that no change will take place in it, within at least three months, which is the longest time we ever had kept a sample of the solution on hand.

When hyoscyamine was first introduced, several lots of the German alkaloid were met with which were wrongly labelled "Hyoscyaminum Sulphuricum," but which contained no sulphuric acid at all. The pure alkaloid *hyoscyamine* very much resembles atropine, being usually in white, amorphous flakes, which are not readily soluble in water. Any *white* "sulphate of hyoscyamine," still in the possession of any of our readers, should be at once examined, so that the error may be corrected. A small quantity of it should be dissolved in water, if necessary, with the aid of a very gentle heat, a drop or two of nitric acid should be added, and afterwards a few drops of solution of chloride of barium, when a white precipitate or cloud should make its appearance. We suspect, however, that none of the *white* samples will respond to this test.

No. 1052.—**Potassa and Soda** (Prof. C.).

We are well aware that the common stick potash and soda is not up to the standard of the U. S. Pharm. in percentage of absolute alkali. Some time ago we had occasion to examine a number of samples of different manufacturers, and we found a variation of from about 62 to 96 per cent. Some of these samples were what is known as "alcoholized potash or soda," that is, caustic potash or soda purified by alcohol, the latter leaving behind any accompanying carbonate or silicate, etc. It was, at the same time, found that the purest grades were those of the highest percentage, because to get them so high, the original alkali had to be specially treated, and in the course of this treatment, it was comparatively easy to remove impurities. Much of the commercial alkalies in sticks, however—nota-

bly the soda—is simply fused in forms from the alkalies obtained from the large manufacturers without further treatment; hence the larger proportion of impurities usually present. Besides, as long as these alkalies are demanded in form of sticks, they will not be procurable of a high percentage, since a small percentage of water causes them to be removed from the moulds with difficulty.

The apparently high percentage—90%—of the pharmacopœia will undoubtedly be adopted, sooner or later, by careful manufacturers. Meanwhile, a lower grade alkali may be employed (as will be seen by comparing the formulæ for liquor potassæ and liquor sodæ), provided a proportionately larger quantity of the alkali be employed.

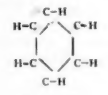
No. 1053.—**Naphthol** (J. P.).

Commercial naphthol usually appears in form of lumps, varying from deep violet-brown to lighter color, crystalline and readily pulverizable; its powder is usually reddish-brown. Pure naphthol, however, forms white, shining needles. Its odor is feeble, and resembles that of carbolic acid; it has a sharp, burning taste, and its powder excites violent sneezing. It is but slightly soluble in hot water, but soluble in an equal weight of alcohol, in oils, and in fats. It is very soluble in ether, chloroform, or benzol. When gently heated, it sublimes, and it may be distilled with steam.

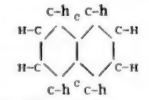
The term "β-Naphthol," which our correspondent wishes to have interpreted, and which occurs sometimes even in price-lists, may be briefly explained as follows:

Naphthalin is a compound, which may be regarded as derived from benzol by the junction of two benzol-rings, adhering by one side, so that two carbon-atoms belong to each ring. [The graphic representation is merely an aid to the explanation, and does not represent the actual position of the constituents of the molecule, which is a solid body. By the graphic formula it is only intended to convey the fact that there are, *at least*, as many carbon-atoms contained in the compound as there are angles.]

Benzol being represented by C_6H_6, naphthalin is represented by C_6H_5, or:



Benzol.



Naphthalin.

Now, the eight atoms of hydrogen are not all homogeneous. It would lead too far to explain here how the fact is proved; suffice it to say that there are in naphthalin *two* separate groups of hydrogen atoms which consist each of *four* equivalent hydrogens, and that one of these sets of four hydrogens is attached to the carbon-atoms situated nearest to the two coincident carbon-atoms. These four hydrogens are distinguished in the formula by a small *h*.

All derivatives of naphthalin, in which the *h*-hydrogens, or any of them, are replaced by other elements or radicals, are called α-derivatives, and those in which the *H* hydrogens are replaced are called β-derivatives.

When chlorine, bromine, or nitric acid act upon naphthalin, the resulting products are always α-derivatives. Only, when naphthalin is dissolved in sulphuric acid, both series of derivatives are simultaneously produced.

Naphthalin is found naturally in the petroleum of Rangoon (Siam), and is formed during the destructive distillation of many organic substances. Its chief source is coal-tar.

When naphthalin is treated with sulphuric acid, two isomeric derivatives are formed, which are, respectively

1. α-naphthalin-sulphonic acid
2. β-naphthalin-sulphonic acid

} $C_{10}H_7.HSO_3 + H_2O$.

In the case of the former, the radical HSO_3 (that is, sulphuric acid less one molecule of hydroxyl) takes the place of one of the hydrogens (*h*) in the α-position; in the second case, one of the hydrogens (*H*) in the β-position is thus replaced.

Four parts of naphthalin are heated with three parts of sulphuric acid, for eight to ten hours, at not over 80° C., the liquid poured into twelve times its quantity of hot water, the undecomposed naphthalin filtered off after cooling, and the solution saturated with carbonate of lead. On evaporation, the β-salt crystallizes out first, and afterwards the α-salt. The latter is boiled with twelve parts of alcohol, which leaves undissolved any accompanying α-salt. From the lead-salts the corresponding acids are prepared. They are both solid and crystalline, the α-acid being prone to melt, while the β-acid does not have this property. The β-acid, moreover, remains unaltered when heated with diluted hydrochloric acid to 200° C., while the α-acid is, thereby, converted into naphthalin and sulphuric acid.

From these two acids may be prepared two different naphthols.

Naphthols are compounds derived from naphthalin by the substitution of one molecule of hydroxyl (HO), in place of one hydrogen. In the same manner phenol is formed from benzol, but, while in the formation of phenol, any one of the hydrogen atoms of benzol may be regarded as replaced by hydroxyl, without alteration of the identity of the product, in the case of naphthalin two different naphthols are possible, according as one of the four hydrogens in the α-, or in the β-positions are replaced. It makes no difference which one of each separate set may be so regarded as replaced: there are only *two* naphthols possible, an α- and a β-naphthol. They are, respectively, formed by fusing the above two acids with alkalies, whereby hydroxyl is substituted for the sulphonic acid (HSO_3).

α-naphthol is difficultly soluble in hot water, easily in alcohol or ether, crystallizes in shining needles, and has a phenol-like odor. Owing to the greater stability which the β-naphthalin-sulphonic acid has, the preparation of

β-naphthol is more easy, and it is this compound which is generally sold in trade as "naphthol." This resembles α-naphthol in appearance and odor, or, when less pure, may be dark-colored, and has the solubilities mentioned in the beginning of this note. When *pure*, it is white, melts at 122° C., boils at 286° C., and its solution is rendered greenish by ferric chloride (while *white* dinaphthol is separated). Ferric chloride throws down, from the aqueous solution of α-naphthol, *violet* flakes of dinaphthol.

No. 1054.—**Chlorate of Sodium, or of Potassium.** (O. A.).

We had already commenced to draw up an outline of the process used by several large English manufacturing establishments, when our attention was drawn to an improved process, published some time ago in *Dingler's Polytech. Journal*, and quite recently in the *Pharm. Handelsblatt* (1882, No. 26). As this process, discovered by Pechiney, reduces the loss of product from 15 to 5 per cent, it is likely to supersede the methods now in use, provided the accompanying waste products will find a ready demand for technical uses.

A crude lye of chlorate of calcium, containing a quantity of chloride of calcium proportional to the reaction caused by a current of chlorine gas, is gradually freed from most of the chloride by evaporation to 48° B., and cooling to 10–12° C. This causes so much chloride of calcium to crystallize out that only six molecules of it remain in solution for every five molecules of chlorate of calcium. If now, for this quantity, eighteen molecules of lime are added, and the mixture heated to 80° C., insoluble oxychloride of calcium is produced, and there only remains 0.3 mol. (or one-eighteenth of the original amount) of chloride of calcium for each one molecule of the chlorate. The solution is now ready to be decomposed by sulphate of sodium, when the following reaction takes place:

$$Ca(ClO_3)_2 + Na_2SO_4 = CaSO_4 + 2NaClO_3.$$

On now separating the liquid from the precipitated sulphate of calcium, and concentrating strongly by evaporation, the larger portion of any chloride of sodium present separates already while the solution is still hot, and, when cold, the first crystallization already furnishes a tolerably pure chlorate of sodium. The labor bestowed upon the preliminary removal of most of the chloride of calcium is by no means useless, since, if this were yet present, the

addition of sulphate of sodium to the lye, would produce another reaction, viz. :

$$\underset{\text{chlorate of calcium}}{Ca(ClO_3)} + \underset{\text{chloride of calcium}}{5\tfrac{1}{2}CaCl_2} + \underset{\text{sulphate of sodium}}{6\tfrac{1}{2}Na_2SO_4} = \underset{\text{chlorate of sodium}}{2NaClO_3} + \underset{\text{chloride of sodium}}{11NaCl} + \underset{\text{sulphate of calcium.}}{6\tfrac{1}{2}CaSO_4}$$

The removal of this large quantity of chloride of sodium, and the lixiviation of the large amount of gypsum would produce bulky solutions, requiring great expense for evaporation.

The first crude product is crystallized, and thereby obtained pure. By substituting sulphate of potassium for sulphate of sodium, the corresponding potassium salt (chlorate) is obtained.

No. 1055.—**Tutty** (G. J.).

This name is applied to an impure oxide of zinc. It is found deposited in the chimneys of the furnaces in which lead ores containing zinc or zinc ores are smelted. It forms incrustration in the flues, but when prepared for medicine is in the form of a brown powder, sometimes having a shade of blue.

Tutty is proximately derived from *tûtiâ*, an Arabicized form of the Persian word *dûd*, meaning "smoke." The word *tûtiâ* has been used in former times (even Marco Polo mentions it) to denote a collyrium, because, among other things, soot was used for this purpose. At present, *tûtiâ* is used in connection with qualifying words, such as "green," "yellow," "white," etc., to denote various mineral substances.

No. 1056.—**Himalaya Rhubarb** (Dr. A. J., Kansas).

Regarding Himalaya rhubarb, which is used in some sections of India, we take the following note from Stewart's *Punjab Plants*: "At least two species of rhubarb are frequent in parts of the Punjab Himalaya from 6,200 to 14,000 feet, the second named occurring still higher, from 15,000 to 17,000 feet; but these have got into confusion in my hands, and their separate identity is therefore not established here. In some parts of the hills, no portion of these plants is used, but in most the stalks are eaten either boiled with water or powdered and mixed with salt and pepper, and in Hazára the dried leaves are boiled with water, and eaten with meat. At one place in Chumba, and also in Lahoul, I was told that the flowers are eaten. The officinal *ribás* of the drug-sellers consists of the dried stalks from Kábul, which may partly be produced by *Rheum Ribes* Gron., a native of Carmel, etc., eastern Persia (where it is called *rivás*), and the Hindú Khúsh. In Afghánistán, the plant is always wild, and appears to grow abundantly in many parts. When green, the leaf stalks are called *rawásh*, and, when blanched, by heaping up stones and gravel round them, are called *chúkrí*; when fresh (in which state they are sometimes brought to Peshawar in spring), they are eaten either raw or cooked, and they are also dried for use to be eaten with other food, and are sometimes made into a preserve. The officinal root is imported into Afghánistán and India to be used as a purgative. In the former country, however, the people appear to have no idea that it is the root of a plant similar to their own *rawásh*, and the roots of the latter are, according to Bellew, spongy and tasteless. Moorcroft also mentions that the roots of the Ladák rhubarb are mostly rotten in the centre; and what roots have been brought from the Himalaya for trial at Lahore, etc., though found to be possessed of laxative properties, are by no means to be relied on. Aitchison, however, states that, although in Lahoul the *Rheum Emodi* is not used medicinally, yet its leaves, even when cultivated in a garden, had medicinal effects when eaten in salad. It is stated by Moorcroft that the Bhotias of Garhwál apply the powdered root to wounds und bruises, and that they use it with madder and potash for dyeing red."

No. 1057.— **Liq. Bismuth and Hydrastia.**

ED. NEW REMEDIES:—In a recent number of your valued journal I noticed an inquiry with regard to Liq. Bismuth and Hydrastia.

I have before me a bottle so labeled, bearing the manufacturer's label "Chapman, Green & Co., Manuf. Pharmacists and Chemists, Chicago, Ill." It is stated to be "a solution of the double citrate of bismuth and hydrastia, adapted to the local treatment of mucous tissues. Each fluidrachm contains 2½ grains, 25 per cent of which consists of hydrastia citrate." An examination of the liquid showed it to be a solution in water and glycerin of ammonio-citrate of bismuth containing a trace—and only a trace—of some alkaloid, presumably hydrastine. I found no difficulty in extracting hydrastine from a solution prepared by myself as nearly as possible in accordance with the formula upon the bottle.

This offers a confirmation of the correspondent who declared the preparation to be nothing but liquor bismuthi.

Yours, very truly.

DETROIT, MICH. A. B. LYONS.

Tropic Fruit Laxative.

J. E. HETHERINGTON, the manufacturer of this preparation, in a recent letter to us denies the authenticity of the formula furnished by Mr. Adam Conrath to the *Pharmacist*, and republished by us on page 55 of our February number. He says: "To be brief, 1st, neither jalap tubers nor senna leaves enters into the composition of 'Tropic Fruit Laxative.' 2d. The preparation cannot become worm-eaten, except from unnatural causes, such as exposure to moths, etc., which is not likely to occur."

Carbolized Iodoform.

C. SHIRK (in the *Berliner Klin. Woch.*) gives the following compound which he recommends on the ground that the odor of the iodoform is completely covered, and is not again developed, even at an elevated temperature:

Iodoform	10 grams.
Carbolic acid	.05 "
Oil of peppermint	2 drops.

Mix the iodoform and acid by trituration, and then add the peppermint oil.

Poplar Ointment.

THE following is mentioned in the *Jour. de Pharm. d'Alsace-Lorraine*, but no mention is made of its uses when prepared. The poplar buds are certainly the least active ingredients:

Fresh poplar buds	1,300 parts.
Belladonna, henbane, nightshade, of each	500 "
Lard	4,000 "

Contuse the herbs, together with 500 parts of the buds, in a wedgewood mortar, place in a shallow capsule, add the lard, and apply a gentle heat until all moisture has been expelled. Then add the remainder of the buds, also contused, digest for twenty-four hours, express, and filter. After cooling, the ointment may again be melted and decanted, to remove all traces of impurities.

Cough Mixture.

THE following formula, said to have originated with the late Prof. Pancoast, of Philadelphia, has the advantage of containing no opium or morphine, since many persons cannot take either of these remedies without discomfort.

Wild cherry bark, Senega	āā ʒ iv.
Ipecacuanha	ʒ ij.
Extract of conium	gr. xv.
Water	q. s. ft. (by displacement) fl. ʒ viij.

Then add

Gin	ʒ i.
Compound tinct. of cardamom	ʒ i.

Two teaspoonfuls in water constitute the usual dose to relieve cough.—*Med. Bulletin.*

BIBLIOGRAPHY.

SCROFULA AND ITS GLAND DISEASES. An Introduction to the General Pathology of Scrofula, with an Account of the Histology, Diagnosis and Treatment of its Glandular Affections. By FREDERICK TREVES, F.R.C.S., Eng., etc. Philadelphia: Henry C. Lea's Sons & Co., 1883, pp. 77, 8vo, 10 cents.

THIS is one of the cheap editions of current medical works published by this house in a form adapted to the coat-pocket and hand-bag of the physician who wishes to make profitable use of time spent in travelling and in waiting-rooms. No one can reasonably expect heavy paper or leaded type in such a volume or for such a price, yet the quality of both in this instance is by no means inferior to that of much of the miscellaneous literature of the day. Such works are certainly more profitable for the reader than for the publisher.

Of late but little attention seems to have been paid to the study of scrofula, unless it has been to include some of its commonly accepted manifestations among the more definite areas of other maladies. Therefore a monograph on this subject should be both timely and instructive. The one here noticed will be found to be both.

YEAR BOOK OF PHARMACY, comprising Abstracts of Papers relating to Pharmacy, Materia Medica, and Chemistry contributed to British and Foreign Journals from July 1st, 18-1, to June 30th, 1882, with the transactions of the British Pharmaceutical Conference at the Nineteenth Annual Meeting held at Southampton, August, 1882. London: J. & A. Churchill, 1882, pp. 550, 8vo, 10 cents.

THIS ever welcome publication appears this year with its customary abstracts of important papers. 28 pages are devoted to Chemistry, 100 pages to Materia Medica and Pharmacy, 44 pages to Notes and Formulas, and 24 pages of titles of works published in the preceding year—over 260 in all. The remainder of the work is devoted to the transactions of the Conference, and includes a full report of all papers and discussions.

A PRACTICAL TREATISE ON DISEASES OF THE SKIN, for the use of Students and Practitioners. By JAMES NEVINS HYDE, A.M., M.D., Professor of Skin and Venereal Diseases, Rush Medical College, Chicago, etc. Philadelphia: Henry C. Lea's Sons & Co., 1883, pp. 572, 8vo.

THIS latest addition to our rext-books on skin diseases adds another to the list of excellent American treatises. Its author seems inclined to favor the tenets of the Vienna school, which teaches the local origin of most skin diseases, rather than those of the British, which adopts the theory of constitutional etiology. In the main, Professor Hyde's work is an example of the safe middle course. In the matter of classification the author follows somewhat after Hebra. He gives, besides, the classification adopted by the American Dermatological Asscciation. Under the head of General Therapeutics, the Author remarks that "The remedial agents employed internallyand recognized as possessed of some value in diseases of the skin are arsenic, mercury, iodine, cod-liver oil, quinine, ergot and carbolic acid." Of all others he says, "Not one of these is known to exercise the slightest remedial action upon the surface of the body, though it can scarcely be doubted that the list will be enlarged as experiments in this direction multiply." We have no doubt that many internal remedies claimed to have special value in cutaneous maladies are greatly overestimated, but we are hardly ready to accept the accuracy of so conservative an opinion. It remains an open question how much evidence Professor Hyde considers essential in the case of a number of remedies much used but not included in the above list The section on medicinal rashes is a very good one and embraces much information lately accumulated and exceedingly important. Throughout the work the descriptions of disease and directions for treatment are rendered with careful attention to details, the only criticism which we are inclined to make, being upon the habit of the writer of using abstruse term derived from Latin or Greek, when English words are quite as significant; nor do we approve the course pursued in giving such standards of dimensions as poppy, mustard and rape seeds, coffee, peas, beans, cherries, finger-nails, chestnuts, horse-chestnuts, hen and goose eggs, oranges, points and pin-heads, instead of definite fractions of some established standare in common use.

PROCEEDINGS OF THE OHIO STATE PHARMACEUTICAL ASSOCIATION at its Fourth Annual Meeting. Held in Zanesville, O., May 17th–18th, 1882. Together with the Constitution, By-Laws, and List of Members. Pp. 95, 8vo.

THE report shows that the organization is in the flourishing condition that its friends might reasonably expect, considering its brief existence.

The number of papers presented was not large, but the business of the Association and the work of its committees shows careful attention.

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Aurep (W.). [On the physiological Effects of Duquesnel's Crystallized Aconitine upon the Animal Organism.] 8vo, pp. 151. St. Petersburg. (In Russian.)

Becke (W. v. d.). Die Milchprüfungsmethoden. Nach vergleichenden Untersuchungen bearbeitet, etc. Mit 30 illust. 8vo. Bremen, 1882.

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Dahm (G.). Tafeln zur schnellen Ermittlung des Alkoholgehaltes geistiger Flüssigkeiten nach Gewichtsprocenten bei der Destillationsmethode. 8vo. Wiesbaden. 0.60*m.*

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Ruetz (Otto). Wie lassen sich Verfälschungen der Nahrungs-, Genussmittel und Consumartikel leicht und sicher nachweisen? (Illust.) 8vo. Newied, 1883.

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Schultz (Dr. Gustav). Die Chemie des Steinkohlentheers, mit besonderer Berücksichtigung der künstlichen organischen Farbstoffe. 2 parts. 8vo. Braunschweig. 32*m.*

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Winkler (Clem.). Die Maassanalyse nach neuem titrimetrischen Systeme. 8vo. Freiberg (Saxony). 4*m.*

Zabrocki (R.). Pharmakologische und Chemische Untersuchungen über das Erythrophleïn, das Alkaloid der Sassy-Rinde. (Dissertation.) 8vo. Halle, 1882.

NEW PATENTS.

[*Complete specifications and illustrations may be obtained of any one or more of the following patents by sending the number, title, name of patentee, with twenty-five cents for each copy, to the Commissioner of Patents, at Washington, D. C., together with the name and address of the person requesting the same.*]

269,850. *Apparatus for Distributing Powders upon Surfaces.*—William Hadden, Brooklyn, N. Y.

269,909. *Liquid Measure.*—Harry C. Armstrong, Detroit, Mich.

269,959. *Mixer or Agitator for Soda-Water Apparatus.*—Alvin D. Puffer, Medford, Mass.

270,021. *Measuring Pump.*—Sherman M. Cole, Anamosa, Iowa.

270,042. *Manufacture of Glucose.*—Ambrose G. Fell, New York, N. Y.

270,074. *Insect-Powder Ejector.*—Julius Jæger, Rutherford Park, N. J.

270,095. *Cork-Extractor.*—Robert Morgan, Stockton, Cal.

270,121 and 270,193. *Ice Machine.*—Thomas L. Rankin, New York, N. Y.

270,210. *Method of Production of Starch, Dextrin, Glucose, Syrup, and Grape Sugar.*—James Duff, Oswego, N. Y.

270,260. *Saccharification of Starch.*—Flavius P. Striker, Toronto, Ontario, Canada.

270,284. *Artificial Ear-Drums.*—John W. Culbertson, Indianapolis, Ind.

270,291. *Apparatus for Extracting Oil from Oleaginous Seeds, etc.*—Samuel B. Dorn, Dayton, Ohio, assignor to the Buckeye Iron and Brass Works, same place.

270,342. *Process of and Means for Making Tubes from Celluloid and other Plastic Material.*—W. E. Sargent, Newark, N. J.

270,416. *Try-Box and Indicator for Spirit Cisterns.*—John Guadinger, Jr., Paris, Ky.

10,268 (Re-issue). *Ear Trumpet.*—Stephen North, Syracuse, N. Y. Original No. 227,178.

270,634. *Filtering Saccharine Solutions.*—Paul Casamajor, Brooklyn, N. Y. Consists in mixing therewith a small quantity of sawdust, and then filtering the liquid so mixed, through sieves, fabrics, or other filtering materials.

270,655. *Nasal Respirator.*—William A. Fruhling, Jr., San Jose, Cal.

270,668. *Preparing Alkaline Bicarbonates.*—Eben N Horsford, Cambridge, Mass., and Charles A. Catlin, Providence, R. I. The process of preparing alkaline bicarbonates, which consists in moistening the same with solutions of salts of magnesium, or with solutions of other salts, which by double composition with the bicarbonates will form a superficial inert or less active carbonate, and then drying the mass.

270,669. *Machine for Forming Wrappers for Packages of Small Merchandise.*—Warren B. Howe, Chicago, Ill.

270,685. *Oil or Liquid Can.*—Robert B. McConnell, Paducah, Ky., assignor to Lorenzo W. Emory, same place.

270,716. *Capsule Stripper.*—Louis J. Wohnlich, Detroit, Mich., assignor to Richard J. Scholes, William McFarland, and Andrew McFarland, same place.

270,763. *Manufacture of Sulphuric Acid.*—Thomas D. Dotterer, Charleston, S. C.

270,807. *High-Pressure Filter Press.*—John Johnson, Brooklyn, N. Y.

270,878. *Soluble Cocoa.*—Eugen Felix Georg Hartmann, Berlin, assignor to Geb. Stollwerk, Cologne, Germany.

10,274. *Thermometer Tube.*—Henry Weinhagen, Hoboken, N. J., assignor to Charles Albert Tatum, New York, N. Y.

270,894. *Method of and Apparatus for Manufacturing Starch, Dextrin, Glucose, Grape Sugar, Syrup or Spirits, Beer or Vinegar.*—James Duff, Oswego, N. Y.

270,997 and 270,998. *Packing Caustic Alkali.*—T. Chalkley Taylor, Philadelphia, Pa.

271,023. *Evaporating Apparatus.*—Oscar F. Boomer, Brooklyn, N. Y.

271,024. *Poison for Squirrels, Gophers, etc.*—Alfred R. Booth, San Luis Obispo, Cal. Cyanide of potassium (granular) 5 ounces; strychnine crystals (best), 6 ounces; Irish moss, 1 pound; Cocculus Indicus (powdered, fresh), ½ pound; white glue, ¼ pound; honey (strained), 5 quarts; oil anise, peppermint, rhodium, and cummin, each 60 drops; flour or meal sufficient; clean wheat, 100 pounds.

271,032. *Oil-can.*—Mathew Burton, Batavia, Ill.

271,036. *Process for the Destruction of Phylloxera.*—Bernardin Casanova, Moca-Croce, Corsica, France.

271,080. *Method of and Apparatus for Freezing Paraffin, etc.*—Edward Kells, Cleveland, Ohio, assignor of one-half to David A. Dungler, same place.

271,087. *Box for Bottles.*—James E. Luscomb, New York, N. Y., assignor to Mary Rooney, same place.

271,090. *Manufacture of Anhydrous Sulphide of Zinc.*—Thomas Macfarlane, Actonvale, Quebec, assignor to Alexander Ramsay, Montreal, Canada.

271,105. *Crucible.*—George Nimmo, Jersey City, N. J.

271,304. *Machine for Capsuling Bottles.*—Friederich W. A. Boldt, Hamburg, Germany, assignor to Boldt & Vogel, same place.

271,341. *Ointment.*—Sydney B. Leonardy, Tampa, Fla. For the cure of ring-worm, tetter, and other cutaneous diseases, consisting of permanganate of potassium, thymol, chrysophanic acid, cosmoline, and water.

271,389 and 271,399. *Mechanism for Cutting up Plastic or Yielding Substances.*—John G. Baker, Philadelphia, Pa., assignor to the Enterprise Manufacturing Co., of Pennsylvania, same place.

271,506. *Remedy for Diphtheria.*—John G. L. Myers, Osceola Mills, Pa., assignor of two-thirds to Harvey J. Wells, same place, and Samuel Hoover, Fowler, Pa. Compared of chlorate of potash, tincture of guaiac, "spirits of nitre," and syrup of balsam of tolu.

Naphthol In Itch.

Kaposi's Naphthol Salve:

Naphthol	15 parts.
Green soap	50 "
Prepared chalk	10 "
Lard	100 "

The affected parts to be rubbed twice a day.

Hardy's Naphthol Ointment:

Naphthol	10 parts.
Vaseline	100 "

Dissolve the powdered naphthol in half its weight of ether. Mix this solution with a portion of the vaseline, and heat to about 40° C. (104° F.), until the ether is completely evaporated. Then add the remainder of the vaseline, and triturate thoroughly. Finally preserve the ointment in a well-covered vessel.

It has been said that the employment of naphthol, in large doses (*externally*), can produce untoward effects, particularly upon the kidneys. While no such effects have been observed by Hardy and several other experimenters, it will always be advisable to watch the urine. In case of any signs of albuminuria, or other alarming symptom, the treatment should at once be changed.

Show-Card Ink.

Pure asphaltum	2 ounces
Venice turpentine	1 ounce
Lampblack	½ ounce
Spirit of turpentine	½ pint

ITEMS.

Ohio State Pharmaceutical Association.— The fifth annual meeting of the Ohio State Pharmaceutical Association will be held in the city of Cleveland on Wednesday and Thursday, the 16th and 17th of May next. It promises to be an interesting meeting, and will be largely attended. The exhibition room is ample, convenient of access, and there will be no charges whatever for space. All those desiring space to exhibit their products and wares should make application at once. Address all communications to E. A. SCHELLENTRAGER,
CLEVELAND, O. *Local Secretary.*

Louisiana Pharmaceutical Association. — The above Association will hold an exhibition of chemicals, pharmaceutical products and appliances, and other articles of interest to the profession, at the time of its next annual meeting in New Orleans, commencing Monday, April 2d, 1883, and continuing for three days thereafter. This exhibition, the first of its kind in this city, will afford an excellent opportunity for manufacturers and dealers in the above articles to bring their products to the notice of the pharmacists in this section of the south.

A large and well-lighted hall has been secured for the occasion, and the Executive Committee will do all in their power to secure a good display for each exhibit. Applications for space should be made to the chairman of the committee at least fifteen days before the opening day. All goods should be consigned to R. N. Girling, care of P. L. Cusachs, 158 Canal street, and should reach New Orleans five days previous to the exhibition, in order to allow sufficient time to place them in position. Intending exhibitors will please specify if they intend to send showcases, and if said cases require stands or not.

All patent medicines, secret remedies, and copyrighted articles, the working formula of which is not printed on the labels, shall be excluded from the exhibition.

Any further information will be furnished on addressing the Chairman of the Executive Committee, 158 Canal street, New Orleans.

Executive Committee: R. N. Girling, *Chairman*; S. Hiriart, E. G. Wunderlich, J. Johnson, F. Gouaux.

HILAND FLOWERS, *Rec. Sec.*
NEW ORLEANS, Feb 7th, 1883.

The Connecticut Pharmaceutical Association.— The seventh annual meeting of this Association, held at Hartford, on the 6th and 7th of February, was well attended. Reports showed that its membership had decreased during the year from 124 to 120; its expenses had been $404.68, leaving a balance of $806.86. Twenty-four new members were elected, and seven names were dropped from the roll for non-payment of dues.

The officers elected are: *President*, E. S. Sykes, of Hartford; *Vice-Presidents*, N. J. Beers and J. C. Nichols; *Secretary*, Frederick Wilcox (re-elected); *Treasurer*, Geo. P. Chandler.

The summer meeting is to be held on Tuesday, July 10th.

The following delegations to other State Pharmaceutical Associations were appointed: *Massachusetts*—E. A. Gessner, H. Pendleton, Jr., E. S. Sykes; *New York*—J. K. Williams, N. J. Beers, J. M. Wilson; *New Jersey*—N. D. Levin, Thos. P. Main, W. W. Moshier.

Standing Committees: Executive—Walter R. Francis, Frederick S. Stevens, W. W. Moshier, Chas. W. Whittlesey, Lester H. Goodwin; *Progress of Pharmacy and Queries*—C. A. Rapelye, W. A. Spaulding, Fred'k. Rogers, C. B. Botsford, R. S. Woodruff; *Legislation*—L. I. Munson, E. A. Gessner, S. Goodrich, N. D. Levin; *Trade Interests*—H. H. Osgood, G. P. Chandler, Henry Woodward, C. E. Bristol.

Mr. E. A. Gessner was appointed *Local Secretary* for next year, when the Association will meet at New Haven.

Dr. Benjamin Howard Rand died, in Philadelphia, on the 15th of February, in his fifty-sixth year. In 1850, he was elected Professor of Chemistry of the Franklin Institute, holding that position until his resignation in 1864. Upon the foundation of the Philadelphia Medical College—an institution which ceased to exist in 1861—he was elected to the Chair of Chemistry, and from 1852 to 1864 he was Secretary to the Academy of Natural Sciences. The latter office, as well as his professorship in the Franklin Institute, he resigned in 1864, in order to accept the Chair of Chemistry in Jefferson Medical College, from which he resigned by reason of ill-health in May, 1877. He was elected a Fellow of the Philadelphia College of Physicians in 1853, and a member of the American Philadelphia Society in 1868, and was also a member of the American Medical Association.

The Physician and the Druggist.—About a year ago, Martin McIntyre, a Fonda druggist, put up a prescription for John Cook, written by Dr. Parsons, of Fultonville. The medicine nearly killed Cook. The physician claimed the prescription had been altered, and commenced an action against the druggist for damages. The prescription called for one drachm of podophyllin. Dr. Parsons claimed he had written it one grain, and that it had been altered by the druggist to cover up his mistake. The case was tried last week. On the trial Mr. McIntyre swore the prescription had not been altered, and Dr. Parsons swore it had. Two experts testified that no alteration had been made. Another question in the case was whether or not the druggist was justifiable in putting up a prescription in which he noticed a dangerous excess of any ingredient. Judge Landon ruled that if the prescription of a regular practising physician is put up as written, the druggist is not responsible. The jury decided that the prescription had not been altered, and therefore no cause for action.—*Utica Herald*, February 12th.

Refilling Prescriptions.—"It is said," so reports the *Boston Medical and Surgical Reporter*, "that in Wisconsin any druggist, apothecary, or vender of medicine is liable to a fine of $10 and costs for every time he is convicted of refilling a prescription marked "No Duplicate." [Doubtful.—ED. N. R.]

New Soda Works.—An English syndicate, preparing to manufacture caustic soda in this country, have purchased a large plot of ground in the new salt field at Warsaw, N. Y. The company will have from $1,000,000 to $2,000,000 capital, and will employ 1,000 men. A similar set of works are being constructed at Syracuse.

Cold Cream, which easily becomes rancid, may be preserved by the addition of a small amount of salicylic acid.

Dr. Martin's Adhesive Plaster consists of India rubber and Burgundy pitch, incorporated with a small amount of Tolu balsam, and spread on muslin or silk

Benzoin has been found by Mr. B. F. Scholl to be better than styrax as a preservative of ointments. The latter will answer this purpose if the ointments are not kept over two or three months. In experiments made by Mr. Scholl, ʒ i. of tincture of benzoin to the ʒ i. of lard was found most serviceable.

Paste for Labels, suitable for bottles, many be made by soaking glue in strong vinegar then heat to boiling and add flour. This is very adhesive and will not decompose when kept in wide-mouthed bottles.

Brown's Bronchial Troches are said to be composed as follows: Powdered extract of licorice, 16 ounces; powdered sugar, 24 ounces; cubebs, gum arabic, of each 4 ounces; extract of conium, 1 ounce. Mix, and with sufficient water make troches of suitable size.—*Druggists' Circular.*

Quinine Pills.—The editor of the *Pharmacist and Chemist*, of Chicago, announces that he will soon publish an analysis of the quinine pills of the market.

The Fifty-fourth Annual Session of the College of Pharmacy of the City of New York begins April 2d, 1883. During the past year, many important changes have been made in the arrangement of the rooms, and a large collection of apparatus, and chemical and botanical specimens has been added to their already abundant supply. The summer classes will comprise a course of instruction in analytical chemistry, beginning April 2d and ending June 30th. This department will be under the charge of Professor Charles W. Parsons, and will be conducted between the hours of 9 A.M. and 1 P.M. daily. Professor Parsons will also deliver a course of lectures on analytical chemistry in the new lecture room of the college adjoining the laboratory. The course in practical botany will again be under the management of Professor Schrenk, who made such a success during the last two years; this course begins April 11th and concludes July 11th. The college deserves great credit for the progress it has made of late years. With its increased facilities, and its constant growing reputation, we see no reason why the classes of its fifty-fourth session should not be larger and of higher standing than those of any previous year.

The election of Officers and Trustees will take place on Thursday, March 15th, and the commencement exercises will be held at Steinway Hall on March 20th, 1883.

New York Pharmacists on the Prescribing of "Specialties."—A meeting was held at the New York College of Pharmacy on the 27th of February, at which a committee reported in favor of an effort on the part of pharmacists to discourage the prescribing of the pharmaceutical specialties of specified manufacturers, when they can just as well be made by any competent pharmacist. The evil attending the carrying of a line of identical goods made by a variety of manufacturers is already too great, and is daily increasing.

The Albany College of Pharmacy lately received from Messrs. Caswell, Hazard & Co., and Messrs. Frazer & Co., of New York, two handsome cabinets containing samples of Dr. Fuller's tablets made by them.

Alumni Association of the College of Pharmacy of the City of New York.—The Annual meeting of the Alumni Association will be held on March 16th, 1883, at 8 o'clock P.M., in the College of Pharmacy building.

FRED. HOHENTHAL, *Secretary.*

A Pharmaceutical Association was organized in little Rock, Ark., on the 30th of January, with the election of the following-named officers: President, Dr. J. J. McAlmont; Vice-President, Dr. John B. Bond; Secretary, Mr. Amlar; Treasurer, Mr. E. P. Schaer.

A School of Pharmacy for Women has been started in Louisville, Ky., in connection with the Polytechnic School of Kentucky.

The Dextro-Quinologist is the name that *The Medical Age* suggests as more appropriate than the lately one adopted in place of "*The Monthly Review of Medicine and Pharmacy.*"

Dr. Bunsen has been elected a Foreign Associate of the Paris Academy of Sciences, to succeed the late Professor Wöhler, of Göttingen.

The late Mr. Gehe (see NEW REM. 1882, p. 283), has, by his last will, founded two scholarships under the name "Gehe-Winckler'sche Stipendien," with a capital of 60,000 marks, one-half of which will be placed in trust with the senate of the University of Leipzig, and the other with the City Council of Dresden. He made, besides, a number of large testamentary bequests, to the amount of about 2½ millions of marks. The employees of the house also received legacies, in proportion to their time of service and position, amounting to about 100,000 marks.

Regulating the Sale of Poisons in New Jersey.—A bill has been introduced into the New Jersey Legislature requiring the labelling of all drugs commonly known as poisons, in such manner that each box or package shall bear the name of the article contained and the word *poison*, together with the name and place of business of the seller.

N. Y. Deutscher Apotheker-Verein.—This Association, at its annual meeting, held in January, reported a membership of 116. The treasury contained a surplus of $1,700. The officers elected are: *President*, Ad. Tscheppe; *Vice-Presidents*, L. G. W. Ruprecht, F. J. Zitz; *Recording Secretary*, C. E. P. Meumann; *Corresponding Secretary*, C. Kessler (cor. 4th st. and Avenue B); *Treasurer*, Th. Louis; *Librarian*, P. Balluff; *Curator*, Ch. Schur; *Business Committee*, Messrs. Van der Emde, of Hoboken, Bischoff, and Bendiner; *Committee on Scientific Information*, Messrs. Meumann, Lehlbach, Frœbel, Rice, and Gœtting.

The Kentucky State Board of Pharmacy held a semi-annual meeting, on the 16th of January, in Louisville, where it was resolved to secure, if possible, a rigid enforcement of the law requiring every dispensing pharmacist to be either a graduate in pharmacy, or a licentiate of the Board. The Registrar, Dr. J. W. Fowler, reported 295 pharmacists and 246 assistants duly qualified and holding certificates. An effort will be made to secure the enforcement of the act in all towns having more than five thousand inhabitants, and the question was discussed as to the propriety of securing the application of the law to every town in the State. The next meeting of the Board will be in July.

PHARM. CALENDAR FOR MARCH.

N. B.—The officers of Societies, Colleges of Pharmacy, Pharm. Associations, etc., will oblige us by forwarding schedules of their meetings, lists of officers, and any changes that may be desirable.

Date.	Society Meetings.
Thurs. 1st.	New York Coll. Pharm.—Trustees' Meet.
	Massachusetts College of Pharmacy.—Trustees' Meeting.
	Louisville Coll. Pharm.—Pharm. Meet.
Friday 2d.	Cleveland Pharm. Asso.—Meeting.
	American Chem. Soc.—Meets at New York.
Mon. 5th.	Erie Co. Pharm. Asso.—Meet. at Buffalo.
	Massachusetts Coll. Pharm.—Annual Meet.
Tues. 6th.	Philadelphia Coll. Pharm.—Trustees' M.
	Maryland Coll. Pharm.—Trustees' Meeting.
	St. Joseph (Missouri) Pharm. Assoc.—Meet.
Thurs. 8th.	Newark Pharm. Asso.—Annual Meeting.
	Louisville Coll. Pharm.—Direct. Meet.
	Philadelphia Coll. Pharm.—Alumni Ph. M.
	Maryland Coll. Pharm.—Meet.
	New York German Apoth. Soc.—Meet.
	Lancaster Co. (Pa.) Pharm. Assoc.—Meet.
Mon. 12th.	Louisville Coll. Pharm.—Annual Meeting.
Tues. 13th.	Pittsburgh Coll. Pharm.—Trust. Meet.
	Chicago Coll. Pharm.—Trust. Meet.
	St. Louis College Pharm.—Pharm. Meet.
	Massachusetts Coll. Pharmacy.—Pharm. M.
	Kings Co. Pharm. Soc.—Meet. at Brooklyn.
	National Coll. Pharm.—Meet.
Wed. 14th.	New York Board of Pharmacy.—Meeting.
	New York Coll. Pharm.—Alumni Meet.
Thurs. 15th.	New York Coll. Pharm.—Annual Meet.
Tues. 20th.	St. Louis Coll. Pharm.—Trust. & Alum. M.
	Philadelphia Coll. Pharm.—Pharm. M.
	St. Joseph (Missouri) Pharm. Assoc.—Meet.
Mon. 26th.	Philadelphia Coll. Pharm.—Annual Meeting
Tues. 27th.	Boston Druggists' Assoc.—Meet.
Thurs. 29th.	King's Co. Board Pharm.—Meet. at Brook'n